DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

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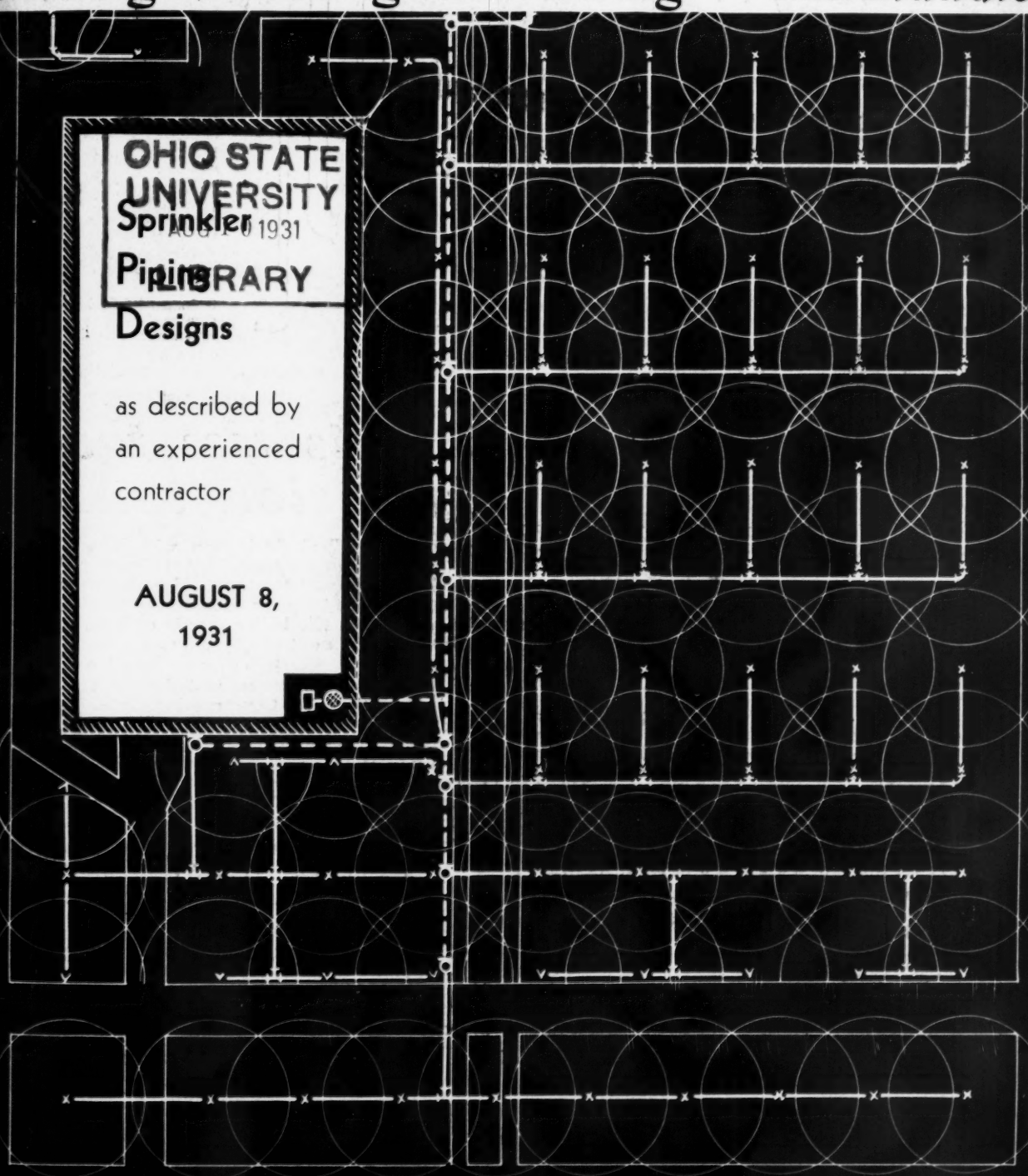
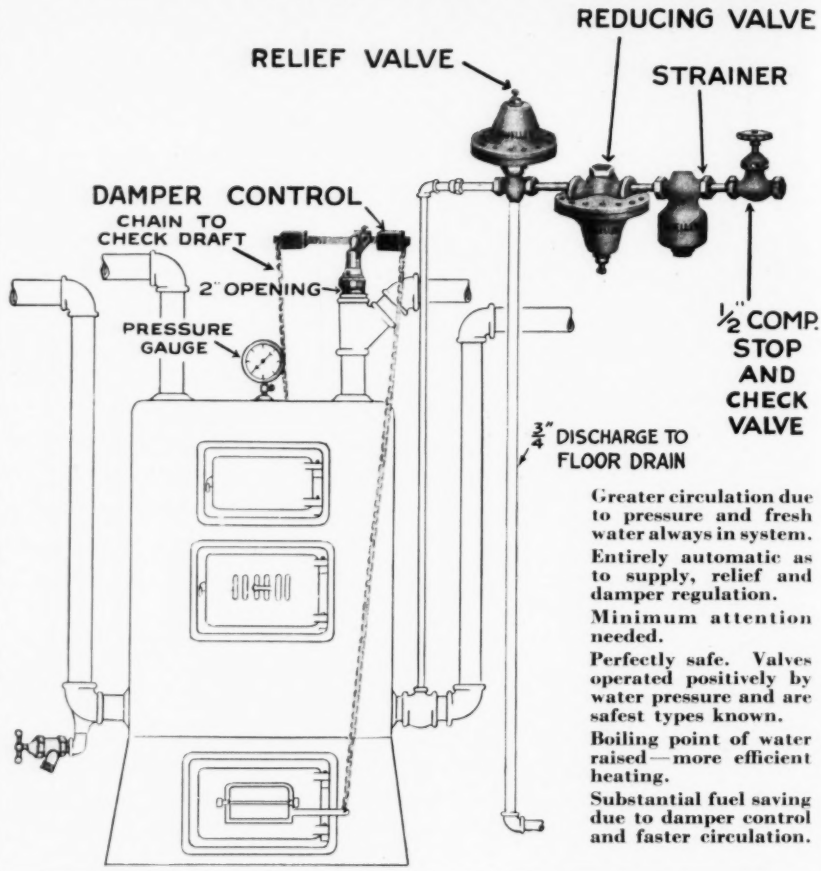
Sprinkler Piping Designs

as described by an experienced contractor

AUGUST 8, 1931



You can profitably sell the MUELLER Heating System



Greater circulation due to pressure and fresh water always in system.

Entirely automatic as to supply, relief and damper regulation.

Minimum attention needed.

Perfectly safe. Valves operated positively by water pressure and are safest types known.

Boiling point of water raised—more efficient heating.

Substantial fuel saving due to damper control and faster circulation.

. . . *because it costs less than the old expansion tank!*

Automatically controls water supply pressure relief and dampers

Economy is a bigger selling argument today than ever before. That's why you can sell more MUELLER Systems with an increased profitable volume.

The MUELLER Heating System is composed of a regulator, relief valve, strainer, combined stop and check valve, damper control and a pressure gauge. It provides complete and automatic control of the water supply, pressure relief and dampers. No attention required—and it costs less than the old-fashioned and troublesome expansion tank!

MUELLER quality, famous for 74 years, is to be found throughout. All working and exposed parts are of MUELLER virgin bronze, with large open ports to eliminate all possibility of clogging. The extra large sediment strainer is placed away from the other valves in order that it may be cleaned without closing the boiler supply or interfering with the adjustment of any valve.

The MUELLER Heating System has been approved by the Underwriters and also conforms to the A. S. M. E. Boiler Construction Code. It effects a considerable saving in fuel due to the automatic damper control and accelerated circulation. Absolutely safe—trouble- and fool-proof—a system that will give many years of complete satisfaction to building owners and tenants, alike. Write for complete information today.

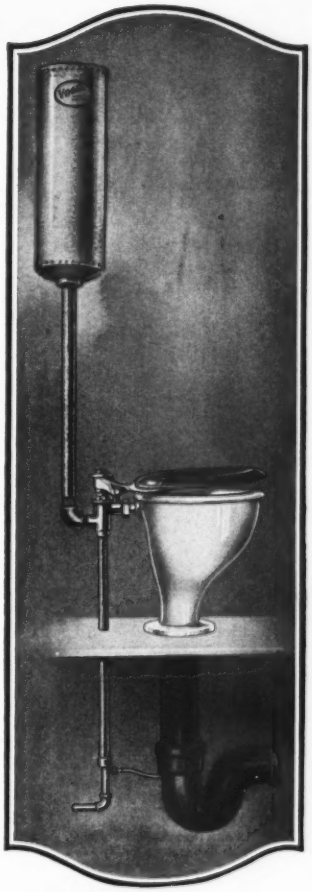
MUELLER CO. (Established 1857) *Factory:* Decatur, Illinois. *Branches:* New York, Dallas, Atlanta, Los Angeles, San Francisco, Chicago. *Canadian Factory:* MUELLER, Limited, Sarnia.

MUELLER

Trade-mark Reg. U. S. Pat. Office

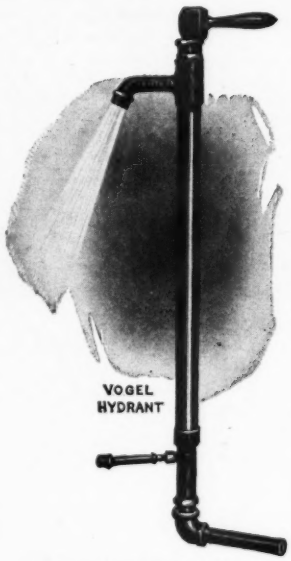
AUTOMATIC SYSTEM OF HOT WATER HEAT CONTROL

WHEN A MAN ORDERS A FROST-PROOF CLOSET HE GENERALLY LEAVES THE CHOICE TO THE PLUMBER . . . . . .



NUMBER ONE VOGEL FROST-PROOF CLOSET

Simple in operation. Sturdy in construction. Half a million in operation.



VOGEL FROST-PROOF HYDRANT

That's why more than 500,000 Vogels have been installed

. . . . for plumbers know what's best for their customers and for themselves.

We supply folders and blotters imprinted with your name and address.

See inside back page for VOGEL PATENTED *Seat-action closet Advertisement*

JOSEPH A. VOGEL COMPANY

Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* PRODUCTS

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

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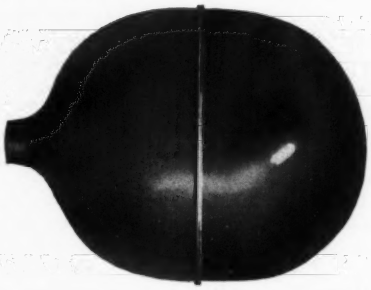
—for that Repair Job—

SUGGEST STOKES HARD RUBBER FLOATS



PAT. APP. FOR

• ***THEY BUILD UP***
your reputation for handling good material and they INCREASE YOUR PROFITS!

ASK YOUR JOBBER *to carry them*

and this is WHY

When you find a badly corroded float ball in a customer's house, offer to replace it with a STOKES Hard Rubber Float. It not only gives you a chance to make a little extra profit, but it stamps you as a merchant who handles quality goods.

You can assure your customer that he will never have to call you back because of trouble with a STOKES Float. You can safely guarantee them for the life of the tank.

STOKES HARD RUBBER FLOATS CAN NEITHER RUST NOR CORRODE

LOOK FOR THIS TRADE MARK
FOR IT GUARANTEES

Your Jobber will be glad to carry a stock of STOKES Hard Rubber Floats on hand if you make a practice of recommending them to your customers, and are able to send an order to your Jobber now and then.

He knows the reputation of STOKES Hard Rubber Products in the trade and is always glad to push quality merchandise. It reacts to his credit and to yours.

IF YOUR JOBBER DOESN'T CARRY STOKES HARD RUBBER FLOATS, SEND US HIS NAME.

MOULDERS SINCE 1897

Jos. Stokes RUBBER CO.
Trenton N. J.
Canadian Plant: Welland, Ontario

STOKES HARD RUBBER FLOATS

Between Ourselves

ON THE front cover of this issue is a blue print of a lawn sprinkler system, designed by a master plumber. There is more to the installation of a sprinkler system than merely the cutting and fitting of pipe. It requires careful planning, and the plumbing contractor, not the landscape contractor, is the logical man to do this work.

Your Editor

HOWEVER, the plumbing contractor who has never installed sprinkler systems should profit by the experiences of those who have. An article in this issue, which is the first of a series, gives the experiences of a Chicago plumbing contractor who has specialized in sprinkler installations. The information presented covers actual installations in careful detail and is designed to cover points which ordinarily are obtained only through costly experience. In the better residential sections of your city many lawns are suffering from lack of proper sprinkling, even though it is apparent that the owner has spent much time and money on their upkeep. Each one of these places is a prospect for a sprinkling system.

IN the AUTOMATIC HEAT section, the new twenty-page department devoted to oil burners, stokers, gas boilers and burners, and all the things that go to make up modern automatic heating, is a splendid assortment of material. You will find in this department much valuable information of a technical nature and also a large number of helpful tips on the selling of these products.

ONE of the newest developments in the plumbing industry during the past several years has been the introduction of the electric dishwasher sink for home kitchens. The possibilities of the market are huge. It is estimated that eighty to ninety per cent of the new home units built annually are electrified and hence qualified as potential buyers of the electric dishwasher sink. Figures show that there are about 20,000,000 wired homes in the United States, which indicates a tremendous replacement market, as most of these now have enameled sinks of various types. In the Merchandising Section are set forth the sales opportunities, merchandising methods of plumbing contractors, and the expressions of builders and owners of this very convenient household appliance. Many contractors, by pushing the sale of specialties, have been able to keep their volume of business at a nice level.

"I AM enjoying your magazine a lot" I. C. Keidle, Mason City, Iowa.

IN THE last issue we asked you to watch for the article that was to appear in this current issue concerning the plans of the gas people to bring air conditioning to the individual home. A great deal of research work has been done in this connection and three houses are being air conditioned by means of gas this summer. The development is of tremendous importance to the master plumber, particularly in view of the new co-operative policy of the gas companies. If these plans mature, there will no longer be any need to swelter in the home during the summer months.

WHEN this issue reaches you another great ocean liner will have started on her maiden voyage, attendant with the ceremony that is befitting such an auspicious occasion. On Thursday of this week the largest American-built liner, the S. S. President Hoover, named for the President, left New York on a trip which will take her around the world. This new giant of the sea is one of the most elaborate passenger ships afloat, containing all of the most modern improvements in ship design. Her plumbing equipment is no exception and you will find interesting the description of this phase of her construction, which appears in an article in this issue.

YOU have heard a lot about remodeling work, but how would you answer a prospect who doubted your ability to design a bathroom for him, using the proper color combinations in the tile and fixtures? It's not always so easy to convince a prospect in the matter of color selection when all you have to work with is sales literature printed up in colors. The next issue will tell the story of a contractor who has overcome this obstacle by showing his prospects complete bathroom installations in the same color combinations as shown in the sales literature.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

A fifty-yard putt! No Control!

It's not the club
nor the ball
nor the length
of your
plus-fours
that makes
a golfer.
It's
proper
control
every time!
Likewise,
in a
heating
system
it isn't
alone
the kind of
fuel you burn
nor the size
of your
fire box
nor the type of
radiators.
You need proper
control
throughout
the system.

The steam consumption of heating systems as well as the comfort of the occupants is very definitely related to the method of *controlling* the heating system. The usual "On-and-Off" method is, by itself, quite inadequate.

First of all you must have a CONTROLLABLE heating system, one in which the supply of heat can be varied at will from nothing at all to maximum by minute degrees just as you control the speed of your car by a slight pressure on the throttle.

A Heating System and Control for Every Need and Every Purpose

Heating requirements vary so widely that no one type of heating system or no one control can be expected to provide comfort, economy and maximum investment return for all types and sizes of buildings. Realizing this, Warren Webster & Company have consistently developed an entire group of Webster Systems of Steam Heating together with effective central control which functions with the smoothness of Bobby Jones' famous "Calamity Jane".

Learn about these NEW Webster Systems and Controls

IMPROVED Webster Vacuum System provides distribution *balanced from the start*—the supply of steam to each radiator is so equalized that *all* radiators get steam at the *same* time and in substantially the *same* proportion regardless of distance from the boiler — a truly CONTROLLABLE vacuum system!

HYLO Vacuum Variator Control applied to an Improved Webster Vacuum System gives the building operator a *throttle* to adjust heat delivery by varying steam flow from maximum down to less than one-third of maximum. Where semi-automatic operation is desirable, the HYLO may be supplemented by an exclusive Webster key room thermostatic control.

Improved Type "R" System for residences and larger buildings gives advantages of steam with advantages of hot water, but without hot water limitations. Distribution *balanced from the start* — fully CONTROLLABLE by a choice of control means depending on the needs of the installation.

Webster MODERATOR Control—applicable to vacuum or open return line Webster Systems (5,000 sq. ft. and upward). Provides the ultimate in control—*a single centrally located gradual acting control—automatic* Roof Thermostat takes care of all factors for which automatic regulation is suitable; convenient co-ordinated *manual* control provides amazing flexibility to meet unexpected operating conditions; supplementary zone control, manual or automatic, if you want it. The MODERATOR System literally puts your building under "Control-by-the-Weather".

Complete details of any or all the above systems and controls on request.

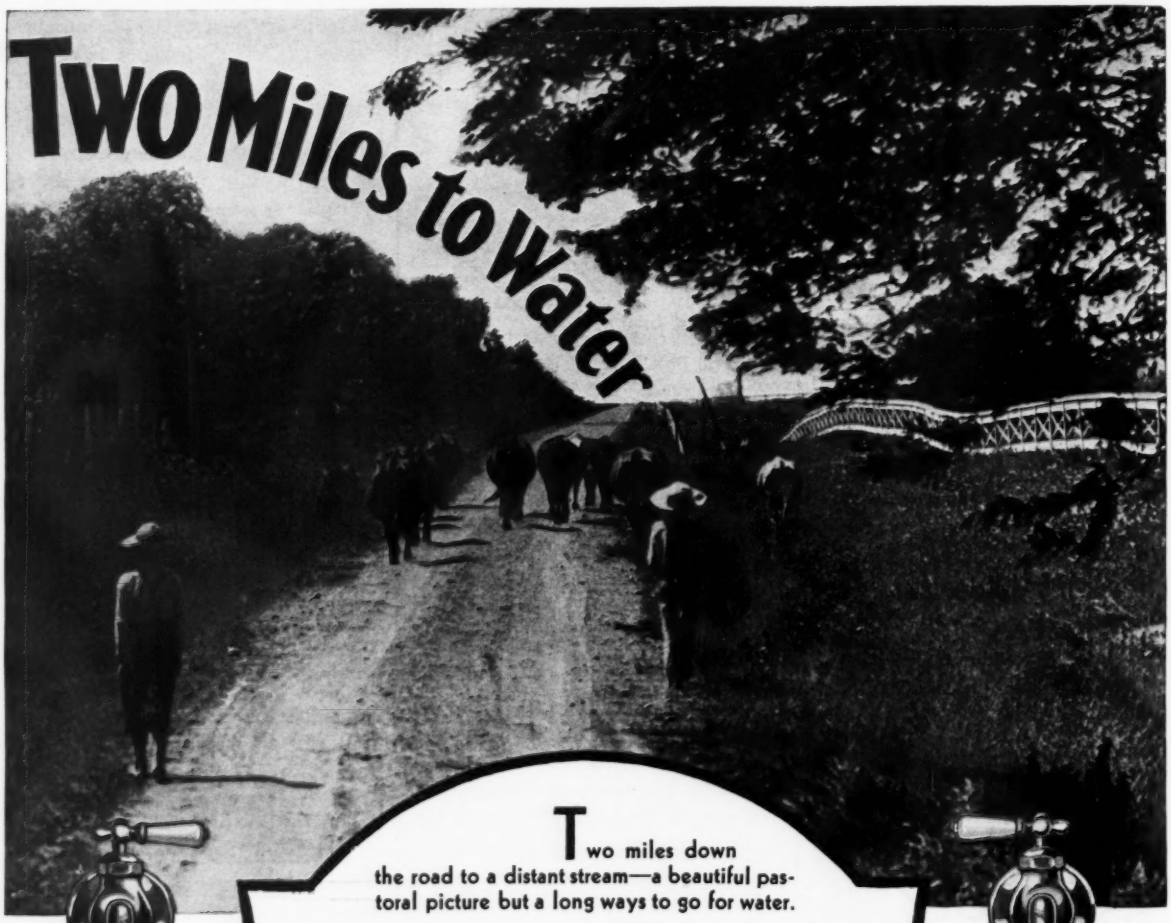
Warren Webster & Company, Camden, N.J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 Principal U. S. Cities
Darling Bros., Ltd., Montreal, Canada

a164

-since 1888
Webster
Systems of
Steam Heating

This is one of a series of advertisements discussing the subject of heating system control. The purpose of the series is to call attention to the need for adequate control and operation of heating systems, and to the control equipment and operating methods developed by Warren Webster & Company. Ask a Webster steam heating specialist to discuss with you this vitally important subject.

Two Miles to Water



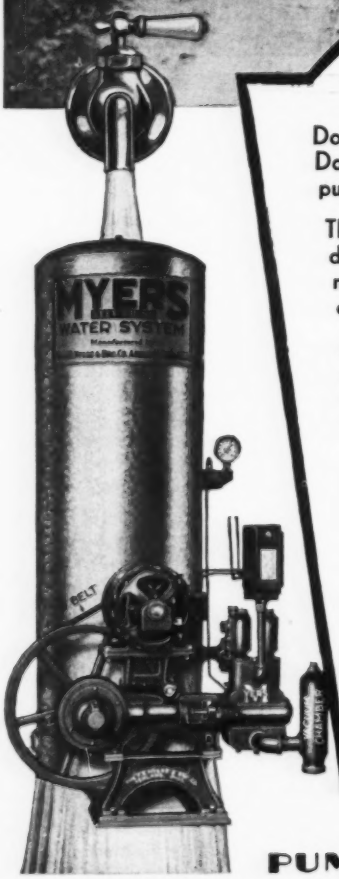
Two miles down the road to a distant stream—a beautiful pastoral picture but a long ways to go for water.

Don't miss the importance of the story this picture tells. Don't underestimate the possibilities it uncovers for pump and water system business.

The thousands who suffered through water shortage during the recent drought are the thousands who are now thinking in terms of improved and larger capacity pumping equipment.

A short story but directly to the point. It reveals remarkable opportunities for every Myers dealer to increase his pump and water system business during the months to come.

There is nothing we can add to the picture to make it more impressive with the exception that if you have not as yet joined the National Myers Water System Sales Campaign that you write or wire us immediately for complete information.



THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO.
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

PUMP BUILDERS SINCE 1870

The Value of "AN EXTRA PROFIT"

PLUMBERS and heating contractors realizing the true importance of cost reduction, do not undervalue the advantages of materials which permit savings even of only a few cents. To them, a dollar saved in installation cost has the same meaning as sixteen dollars of new business. For it takes sixteen dollars in orders to net one dollar of profit when 6¼% is the rate of earnings.

It is not difficult to discover dozens of operations which permit the saving of a few cents, or even of a few dollars. Manufacturing industries have long since discovered that dollars saved from careless costs have a profit value sixteen times as great as a dollars worth of new orders. Hence, the "Stop Waste" campaigns in so many industrial plants.

Plumbers likewise have opportunities to conduct "stop waste" campaigns. One such opportunity may be found in the time used for material installation. For example, several wasted minutes may be saved on each valve installation if valves are selected which are easily worked with and which require no "petting" to make them leak-proof.

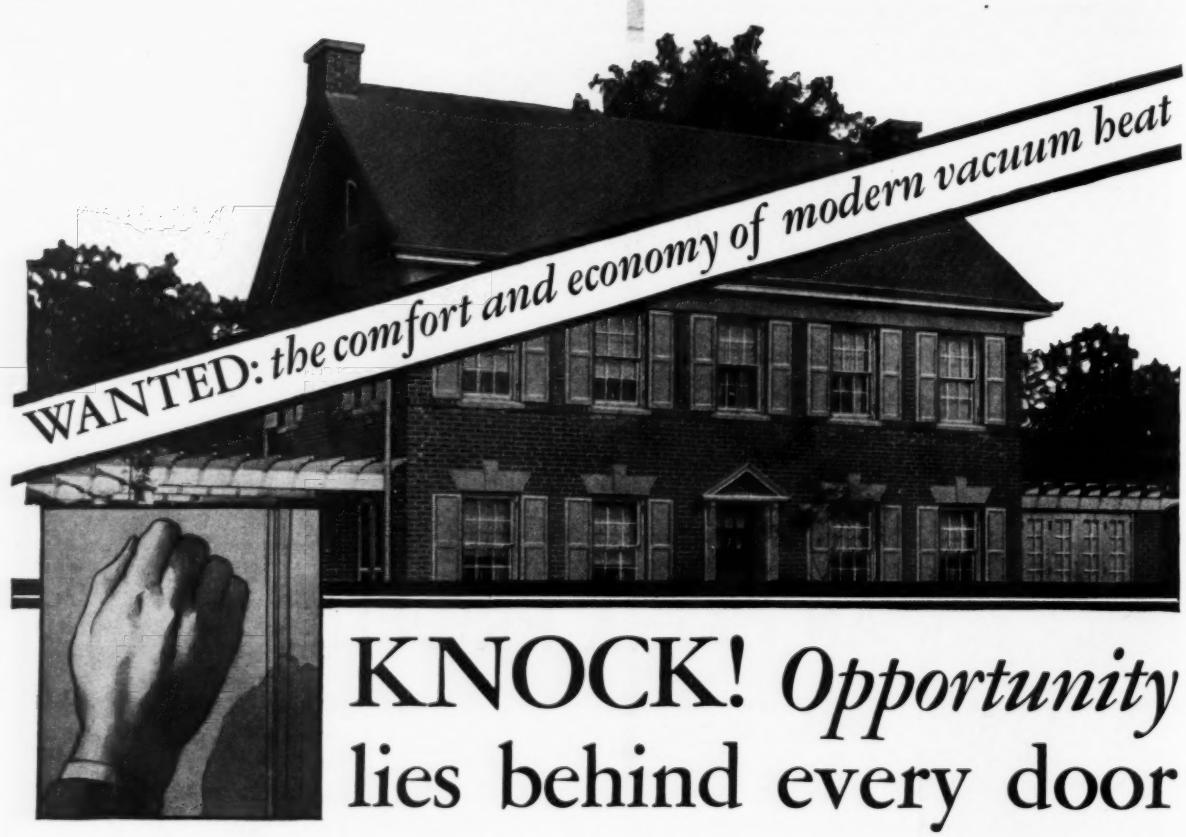
The "extra profit in the make-up" of Ohio Brass Valves comes from the elimination of wasted installation time. And each dollar of these "extra profits" is worth sixteen dollars of new business.

1448V

OHIO BRASS COMPANY

Mansfield, Ohio, U. S. A.

New York City · Philadelphia, Pa. · Chicago, Ill. · Wm. P. Horn Co: Los Angeles · San Francisco · Seattle



KNOCK! *Opportunity* lies behind every door

Opportunity may seldom knock on *your* door. But you can knock on Opportunity's—with profit to yourself. For every home with a one-pipe steam system is Opportunity—ready to yield a money-making modernizing job. Knock on the door! Tell the story of comfort and economy made possible by No. 2 Hoffman Vacuum Valves.

Enterprising heating contractors everywhere are doing this. A recent survey shows how they are uncovering Hoffman-izing business on every hand. By house-to-house calls — journeyman reports — direct mail. Their methods vary, but the result is always the same—PROFIT!

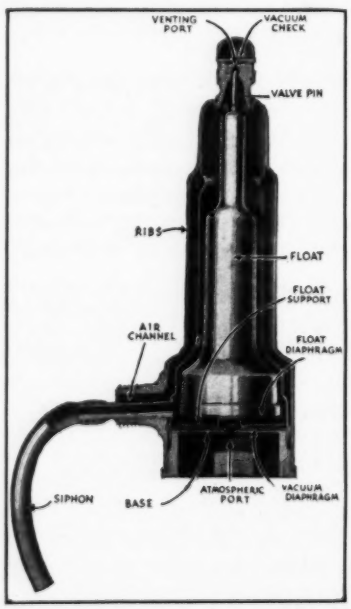
For example: Contractor A sent out 100 Hoffman Direct Mail pieces, got 15 inquiries, closed 12 contracts. Contractor B called personally on 50 prospects and sold 6 modernizing jobs.

Can profit be more easily entered on your books?

Offer the Hoffman Free Comfort Test

It's a sensational sales-producer! Just offer to install a No. 2 Hoffman Vacuum Valve on a stubborn radiator for a 10-day free trial. Then let the prospect judge. It's a simple demonstration worth a thousand words. After watching that radiator heat quicker in the morning and hold its heat longer at night, he's quickly convinced of the comfort and economy assured by a complete installation of Hoffman Vacuum Valves.

No. 2 Hoffman Vacuum Valves are the only valves having a *double air lock.* This patented exclusive feature insures a maximum vacuum under all conditions — whether radiators are partially or fully heated. That's why contractors who take an honest pride in the quality of their work insist on using Hoffman Valves. Hoffman Specialty Company, Inc., Dept. RX-69, Waterbury, Conn. Also makers of Hoffman Controlled Heat and Hoffman-Economy Pumps.

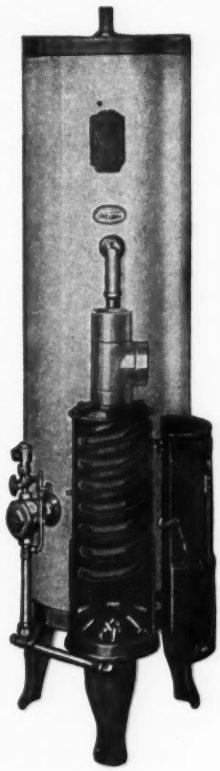


With 4 easy operations you can quickly convert an ordinary one-pipe steam job into a Hoffman-ized Vacuum System that heats up radiators in 15 minutes instead of an hour, and keeps them hot for hours after fires are checked.

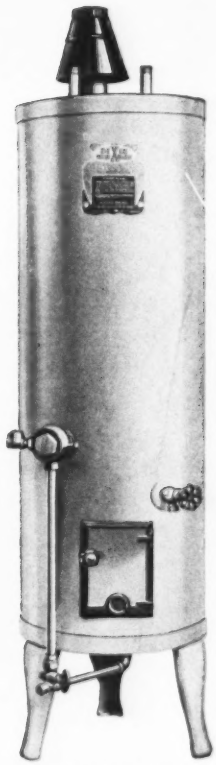
(1) Simply install a No. 2 Hoffman Vacuum Valve on every radiator; (2) Vent the mains with Hoffman No. 16 Valves; (3) Tighten up the system to make it air-tight; (4) And install a Hoffman Kompo Gage on the boiler.

HOFFMAN
No. 2 Vacuum Valves
for one pipe steam systems

Thousands *of homes* This Fall *will invest in* "Hot Water Happiness"



No. 20SA Hotstream Automatic Storage Heater, Side Arm Type, List Price $66.00 Complete



Dixie Automatic Storage Heater, "Internal Type." Made in three sizes, 20, 30 and 40 gallons. List Prices: $55.00, $70.00 and $85.00

And when we say "Hot Water Happiness" we mean all the hot water they need—always ready—always clean—always economical. And that's another way of saying Hotstream Automatic Storage Heater!

"Hot Water Happiness" is something every plumber can sell. It has a ready market—eager, anxious, and able to buy—since Hotstream put the fulfillment of this modern need easily within the reach of every family.

Nothing else you can offer can so quickly clinch these sales—for nothing else offers the many features—many of them exclusive — that have made Hotstream a heater that owners boost and boast of.

The desire of every family for real "Hot Water Happiness" is an opportunity you can turn into cash sales this Fall. Write today for the Hotstream proposition.

THE HOTSTREAM HEATER CO.

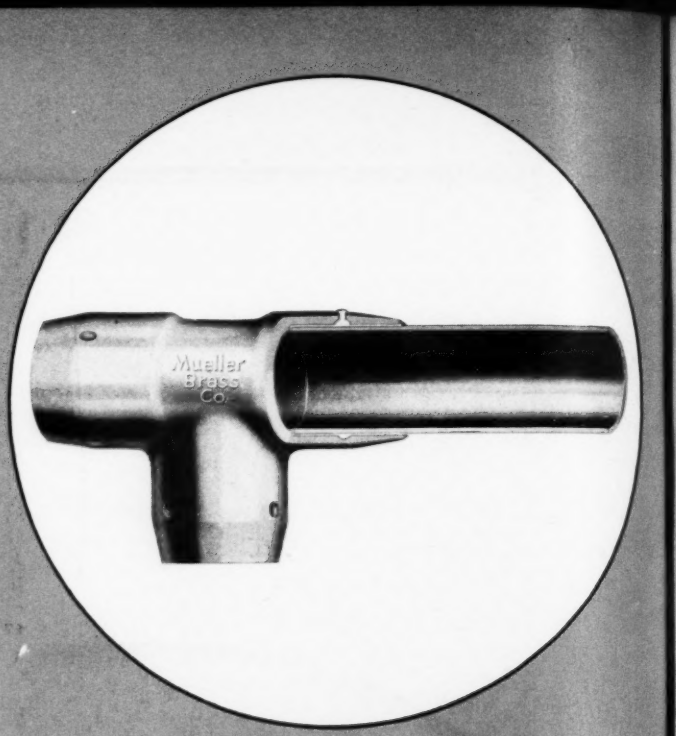
"Makers of Heaters that Heat"

CLEVELAND, OHIO

Manufacturers of a Complete Line of Automatic Storage Heaters, Tank Heaters, Indirect, Gasoline and Kerosene Water Heaters

Represented in Canada by W. H. Cunningham & Hill, Ltd., Toronto

HOTSTREAM
AUTOMATIC STORAGE
HEATERS



Let the solder "WALK UP" until this patented Mueller joint is made tight

Hack-saw, sand cloth, blow-torch, Mueller STREAMLINE solder paste, Mueller STREAMLINE solder—all these mixed with the law of capillary attraction and plumbing skill make every connection between Mueller STREAMLINE hard copper pipe and Mueller STREAMLINE fittings tight the first time. When an unbroken ring of solder shows around the pipe where it enters the fitting, the joint is complete and absolutely leak-proof. A hydrostatic test will prove this to you, but it is unnecessary.

The solder is introduced through the feed hole shown in the illustration above. From there it completely encircles the joint, using the solder feed channel, milled on the inside of the fitting. Thence capillary attraction spreads it surely and quickly over the entire inside surface of the fitting. Capillary attraction is a good workman. It never makes a mistake when Mueller pipe and fittings are used.

For this reason it makes no difference whether the solder feed hole is on the top, bottom or side of the fitting. When the solder is fed in it walks "up," "down" or "out" with equal ease and sureness.

The result is a joint—fully worthy of the high traditions of your trade—that will last as long as the building stands.

If you are not thoroughly familiar with this patented joint, consult your jobber or write for our catalog.

Mueller STREAMLINE fittings are furnished in full range and in sizes of 1/4" to 8", inclusive.

Canadian Office—Mueller Brass Co. of Canada, Limited, Toronto, Ontario

Patent 1,770,852

Patent 1,770,852

Patent 1,770,852

Mueller

BRASS CO. OF PORT HURON

MICHIGAN

112

WHAT $123.00 BUYS in BLACK & DECKER *Electric Tools*

4 TOOLS THAT EVERY SHOP NEEDS!

These four Black & Decker Electric Tools should be in every shop where holes are drilled or grinding, buffing or polishing is done. They are powerful, sturdy and dependable.

All 4 Tools for
ONLY $123

Buy these useful tools from your Jobber. Or mail the coupon below for illustrated Catalogue showing the complete line of Black & Decker Portable Electric Tools.

BLACK & DECKER

Mail Today for Catalogue!

TOWSON, MARYLAND, U. S. A.

Slough, Bucks., England | **Toronto, Ontario, Canada** | **Sydney, Australia**

BLACK & DECKER MFG. CO.
TOWSON, MARYLAND DE

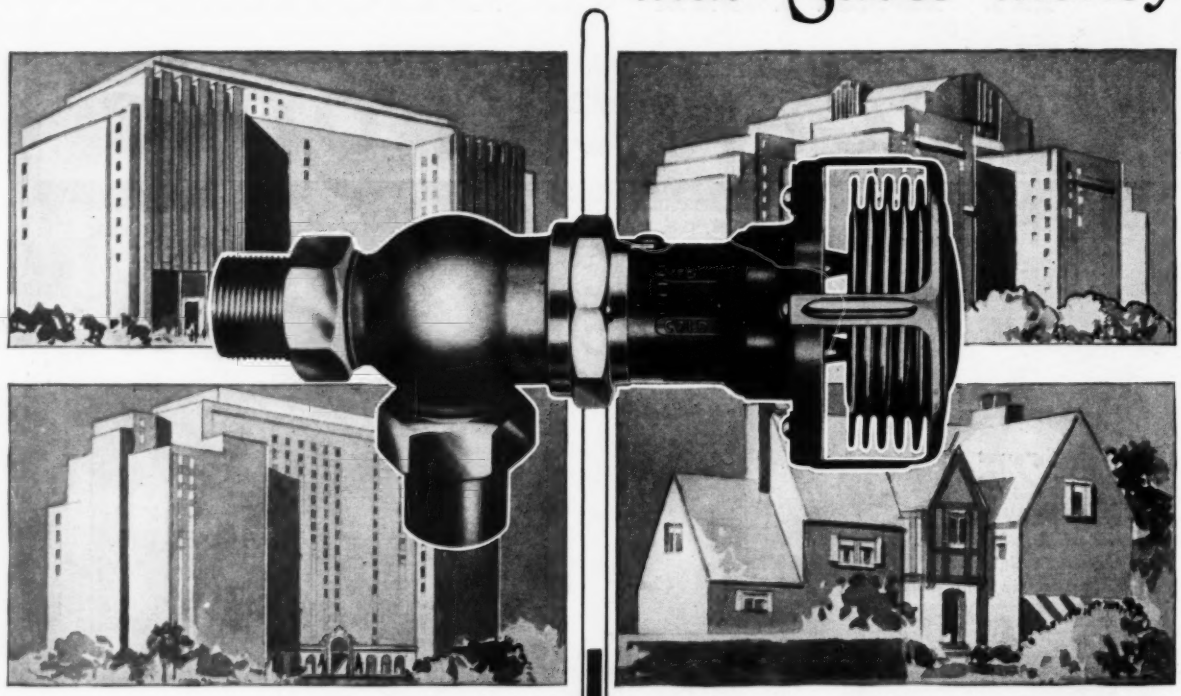
Please send illustrated Catalogue showing complete line of Black & Decker Portable Electric Tools.

Name.....

Address.....

Jobber's Name.....

SELL THIS GREATER COMFORT *that Saves money*



It is here to stay—individual room temperature control for office buildings, hotels, apartment houses and the larger homes. A new heating comfort made possible by Sylphon Automatic Radiator Valves — simple thermostatic valves that replace the ordinary globe or angle valve on the radiator, and maintain constant room temperature automatically, regardless of outside weather conditions or room exposures.

Here is a sound idea, new in popularity, with a fast growing market of large unit sales among people who have money to buy.

Businesses are buying because they know it's good business to maintain healthful temperatures for employees. Office buildings, hotels and apartment buildings are buying because it gives them an edge in the present keen competition for tenants. They are all buying because there are possible savings in fuel up to 20% or more, due to more uniform steam demand.

Here is an opportunity the heating business has been waiting for — something new and profitable — a necessity that can be made to add an extra profit to every large building installation — an entering wedge for new business of the most worth while class.

The Sylphon Automatic Radiator Valve is a guarantee of customer acceptance and continued good-will that few products offer. It is a product of the largest plant in the world specializing in temperature control devices.

Write for further particulars and records of efficiencies. Sent on request. Ask for Bulletin PO-250.

FULTON TEMPERATURE CONTROL

FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.

European Representatives, Crosby Valve and Eng. Co., Ltd., 41-2 Foley St., London, W. 1., Eng.; Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Can.

Representatives in all principal cities in U.S.A.

U. S. HAME COMPANY

Presents to the Plumbing and Heating Industries the New Improved

LAWSON WRENCH

THE WRENCH WITH THE ANGLE HANDLE
THE WRENCH WITH THE ANGLE HANDLE
THE WRENCH WITH THE ANGLE HANDLE
THE WRENCH WITH THE ANGLE HANDLE
THE WRENCH WITH THE ANGLE HANDLE
THE WRENCH WITH THE ANGLE HANDLE
USHCO LAWSON
U.S. HAME CO.
BUFFALO, N.Y., U.S.A.

HERE'S the finest line of wrenches ever offered to the plumbing and heating industries. We mean it . . . try one of the wrenches and see for yourself!

These wrenches are definitely better because of the patented principle and angle handle. It's faster and easier to use . . . you can work it with one hand. And those tough spots, in corners or where pipes lie parallel to a floor, wall or ceiling, the USHCO Lawson Wrench just goes in, grips . . . and does the job.

It's a tough wrench too. The angle handle and jaw frame are drop forged in one piece of special alloy steel. It contains only 5 parts as compared to as many as 12 in some other wrenches, which also gives greater strength and simplicity.

We've built this wrench to last a lifetime. It's packaged in a brilliantly-colored container and right now it's just itching to get into your hands to show you how good it is. See it at your jobber's. Sizes,—8″—10″—14″—18″—24″.

The specifications of these USHCO Lawson Wrenches are yours for the asking. Write us today!

U. S. HAME COMPANY
Buffalo, N. Y.

Canadian Representative:
U. S. Hame Co.
130 Queens Drive,
Weston, Ont.

..... SEND THIS COUPON! .....

U. S. HAME CO.,
137 Tonawanda St.,
Buffalo, N. Y.

Gentlemen:—

Please send me your illustrated folder giving details and specifications of the USHCO Lawson line of wrenches.

Name _____

Address _____

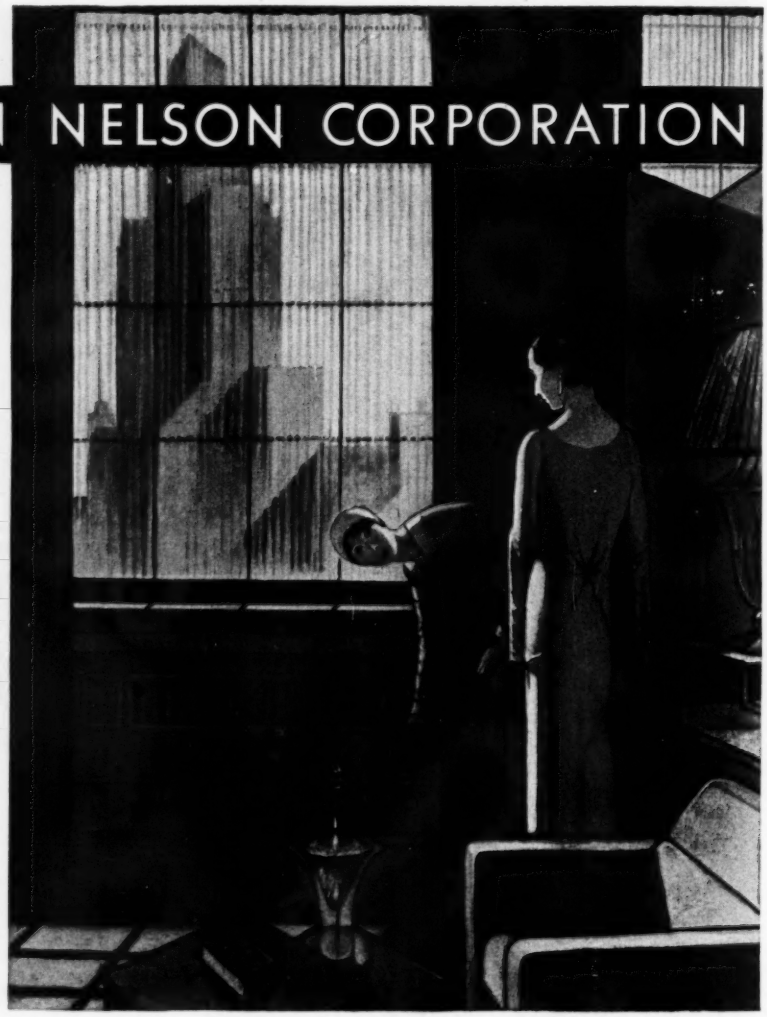
City _____

Firm Name _____

.....

© 1931
T. H. N. Corp.

THE HERMAN NELSON CORPORATION



Every time you install a Herman Nelson Invisible Radiator, you are protecting your own reputation and profit as well as the investment of your customer.

Here is a heating unit not only in key with the modern demand for radiators out of sight and out of the way, but one which will render exceptional service year after year.

The Herman Nelson Invisible Radiator fits within the wall. It comes completely equipped with a sturdy, correctly engineered steel case, graduating damper and choice of six authentic outlet grilles. For larger and taller buildings, where access to control valves is required, a specially designed, removable panel is provided.

Let the Herman Nelson Invisible Radiator help you get profitable quality contracts. Write for engineering data book and full information.

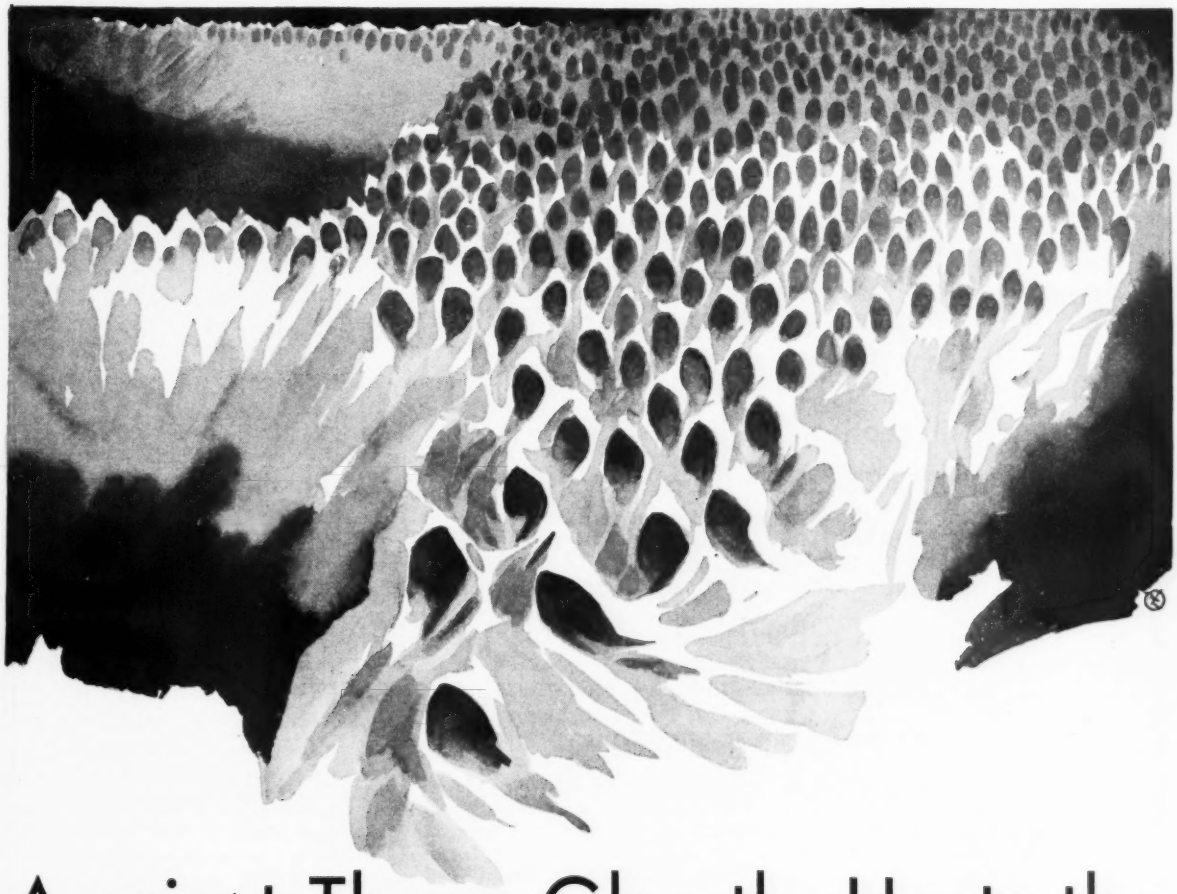
HERMAN NELSON *Invisible* RADIATOR

A HERMAN NELSON PRODUCT

The Herman Nelson Corporation are makers of the *Univent System of Ventilation*, the *Her-Nel-Co System of Ventilation*, the *Herman Nelson Invisible Radiator*, the *Herman Nelson hiJet Heater*, and other heating and ventilating equipment.

Factory at Moline, Illinois · ***Sales and Service Offices in all Principal Cities***

BELFAST, ME.	SCRANTON	GRAND RAPIDS	DES MOINES	MIAMI	SAN FRANCISCO
BOSTON	KINGSTON, PA	SAGINAW, MICH.	MILWAUKEE	DALLAS	LOS ANGELES
SPRINGFIELD, MASS.	HARRISBURG	DETROIT	APPLETON, WIS.	OMAHA	VANCOUVER, B. C.
PROVIDENCE, R. I.	PITTSBURGH	CLEVELAND	MINNEAPOLIS	EMPORIA, KAN.	TORONTO, ONT.
HARTFORD, CONN.	JOHNSTOWN, PA.	COLUMBUS	DULUTH	KANSAS CITY	WINNIPEG, MAN.
NEW YORK CITY	ALLENTOWN, PA.	CINCINNATI	ST. LOUIS	DENVER	CALGARY, ALTA.
SYRACUSE	ERIE, PA.	TOLEDO	BIRMINGHAM	SALT LAKE CITY	LONDON
ALBANY	WHEELING, W. VA.	INDIANAPOLIS	NASHVILLE	BUTTE, MONT.	OSLO
ROCHESTER	WASHINGTON, D. C.	EVANSVILLE, IND.	CHATTANOOGA	SPOKANE	MELBOURNE
BUFFALO	BALTIMORE, MD.	CHICAGO	MEMPHIS	PORTLAND, ORE.	TOKIO, OSAKA
PHILADELPHIA	CHARLOTTE, N. C.	PEORIA, ILL.	NEW ORLEANS	SEATTLE	BUENOS AIRES



Against These Ghostly Hosts the Soldier of Sanitation is Your Ally

In the toilet rooms and plumbing fixtures of every public and semi-public building unseen, ghostly legions lie in ambush ready to attack at the first sign of failure or defect.

The final results of such attacks are much more disastrous than the mere dollar costs involved in remedying the troubles.

For bubble cups may wash germs to the lips of unsuspecting drinkers. Poorly operating closets and urinals may become breeding places for the most hideous of infectious diseases.

And with the number of people using the fixtures these dangers are all too common.

To defeat the grim hosts who promote such conditions the Clow Soldier of Sanitation has worked for 52 years. He has developed the most complete line of specialized plumbing fixtures in the world for schools, hospitals, industrial plants and public buildings.

And he has developed manufacturing and testing methods that assure perfect operation of every fixture before it is shipped.

You will notice the results in two ways: (1) the unseen legions ambushed for stealthy attack will be completely routed, (2) the cost of repelling them through the many years to come will be reduced to almost unbelievably low levels.

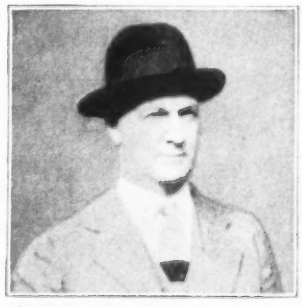
Call him in.

CLOW

CHICAGO

PREFERRED FOR EXACTING PLUMBING SINCE 1878

Consult your architect



The Clow Soldier of Sanitation is a specialist on all plumbing jobs where sanitation is likely to be an acute problem. At his finger tips is the accrued experience of 52 years. This is Ted Seabrooke, Toledo, Ohio.

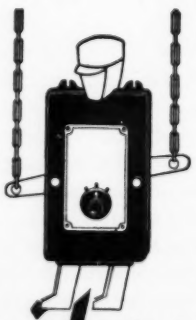
CHALLENGE

To prove the superiority of The Electric Janitor as the best temperature control anywhere near its price, we invite comparison of The Electric Janitor, piece by piece and part by part, with any regulator in its field. This experiment will prove conclusively the superior engineering and the fool proof dependability of The Electric Janitor, backed by the vast engineering and manufacturing resources of the Minneapolis-Honeywell Regulator Co.—for many years leaders in the temperature control field.

THE ELECTRIC JANITOR

Consumer Price Plus Installation	**$49.00**
Trade Price	**24.50**
DEALER PROFIT	**$24.50**

100% net plus installation profit
Limit Controls available at slight extra cost



Your customers will thank you when they see the difference in their fuel bills. See your jobber today and get started with this fast selling line of better temperature controls.

The Electric Janitor

PRODUCT OF
TIME-O-STAT CONTROLS
Division of the MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
MINNEAPOLIS, MINNESOTA AND ELKHART, INDIANA

NYE'S DIE-JEST

Published in the interest of Progressive Plumbers and Steamfitters and incidentally in the interest of the N. T. & M. W.

Vol. 1, No. 4 Nye Tools Save Time Price: One Order

ABOUT BIG BILL JOHNSON

A fellow was telling me the other day that when Big Bill Johnson proposed to his present wife, she said to him, "Bill, this is not an invitation to dance. It is a serious, lifetime problem, and I have heard some rumors about you which I must settle in my own mind before I marry you. I want you to answer me one question and tell me the truth."

"Shoot, dear heart," replied Bill, "I will tell the truth."

"This is it, Bill," she replied, "Do you drink anything?"

"Yes, darling," said Bill, "Anything!"

I am just as honest as Bill. I'll tell you anything you want to ask me about my line. I will promise you that every word of it will be the truth, for I honestly believe my tools will do more for you than you expect them to.

As I have told you before, I speak only two languages: English, which I use when my wife has a tea party and I have to wear eye glasses instead of spex as you see in the picture, and American, which is a good old biff-bang language that gets board and lodging in your bean without a surgical operation or an encyclopedia.

In the very stiffest and hardest way possible, I want to impress upon you that Billy Johnson has nothing on me in honesty.

I have the goods, and I am asking nothing that every true American does not give or fight for if he don't get—a run for my money, a square deal and an honest trial.

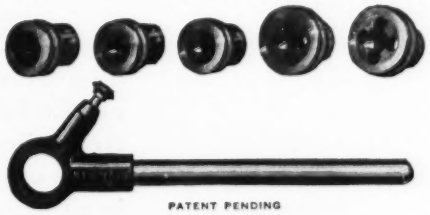
I make the Nye skip-tooth dies in the solid block form to fit any ordinary solid die stock, and I also make them in all sizes in the adjustable form to fit any make of adjustable pattern stock. I also manufacture Nye knurled cutter wheels to fit all standard makes of pipe cutters in all sizes. Send for sample of any of the tools which we make, and put them into the hardest service you have. You stand by, and be judge, prosecuting attorney and jury, and when you have rendered your final verdict I will have a good customer, and you a good tool. You can't beat that proposition.

Harry T. Nye

Otherwise known as The Nye Tool & Machine Works.

Try the "TRIAD" on 10-Days' Free Trial

Nye "TRIAD" Stock
Ratchet Type



PATENT PENDING

The Celebrated Skip Tooth Solid Die "Genuine Nye"

Test the "TRIAD" in your own shop and prove to yourself that here is the greatest stock on the market.

Can be completely assembled or dissembled by hand—no screws or screw-driver necessary. A genuine time and money saver.

Fully equipped with Nye Solid Round Dies; held in place by two stationary pins built in the die heads to prevent their turning; locked in by a threaded die head cap, easily removed by a few right-hand turns.

Dies may be reversed in die holder to thread close nipples, special bushings being provided with each stock for this purpose.

Send your order today.

	Net Price
No. 50, complete, ⅛" to ¾"	$16.63
Ratchet	1.93
⅛" Die Head with Die	2.80
¼" " " " "	2.80
⅜" " " " "	2.80
½" " " " "	3.15
¾" " " " "	3.15
Dies only, each size	1.93

West of Rocky Mountains, 5% Additional

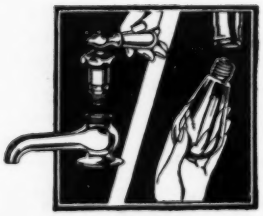
THE NYE TOOL & MACHINE WORKS
MANUFACTURERS OF HIGH GRADE PIPE TOOLS

4120-4130 Fullerton Ave. CHICAGO, ILL.

I owe much of my success to the sale of Chicago Faucets

"A line that keeps your customers sold and satisfied is a line worth boosting. That's why I'm for Chicago Faucets. I've handled them for 20 years and during that time I haven't had 20 minutes of trouble. They have been a big help to me in my success and I owe much of what I am today to their sale. To plumbers who do not now handle Chicago Faucets I have no hesitation in saying, give them a real trial and you will surely prosper."

Frank Omens
Chicago Master Plumber



The working unit is standardized for all Chicago Faucets. There is no wear on the body. The seat is on the unit. Replacing either the seat or washer takes only two or three minutes and is as easy as changing a light bulb. The fact that the faucet itself never needs replacing is what makes a hit with the buyer, and the plumber who sells Chicago Faucets always wins customer goodwill—and profits accordingly.

The Chicago Faucet Company, DE-8-8-31
2700-22 N. Crawford Ave., Chicago.

I believe in Omens, so send along your catalog and cut-open sample, Free.

Name.....

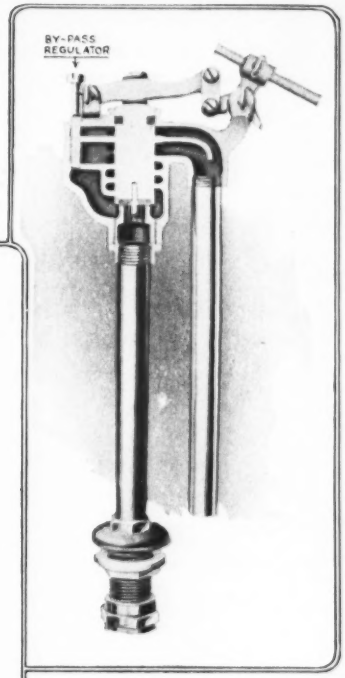
Address.....

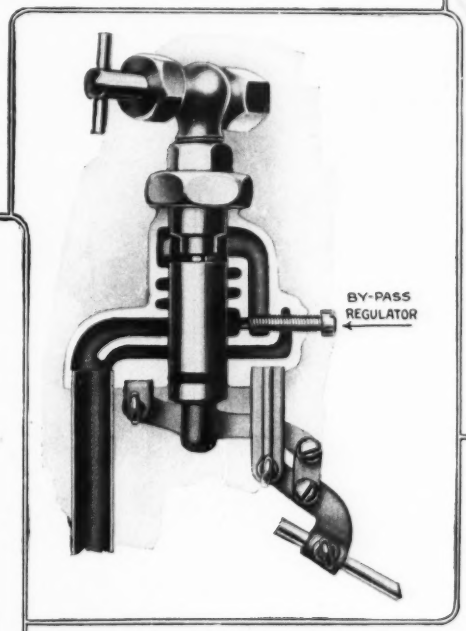
CHICAGO FAUCETS

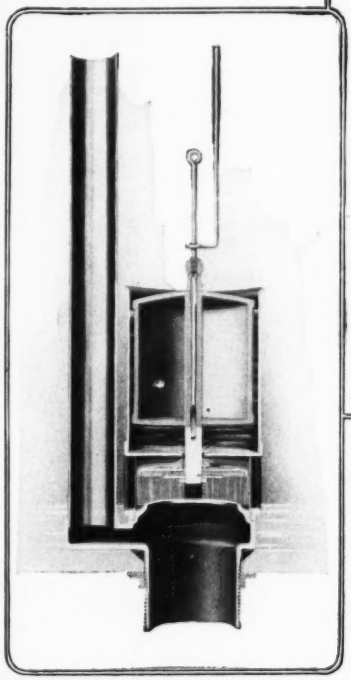
QUIET and ENDURING

NOW~

~is the time for~~







~replacements!~~~

When you consider that about 40% of homes need new bathroom tank fittings—does it give you an idea, Mr. Plumber?

Boost your September sales—make new friends—replace worn, leaky fittings with Curtin tank fittings. You will not regret it.

A. F. CURTIN VALVE CO.
MEDFORD • • • MASSACHUSETTS

CURTIN

NOISELESS TANK FITTINGS

GUY C. SMITH

Manager of Advertising and Research

Libby, McNeill & Libby

"Any American advertising manager who wants to learn the value of the Audit Bureau of Circulations need only start buying newspaper space in foreign countries. The impossibility of knowing accurately, without special and costly research, the amount and breakdown of circulation of publications in any other country, is a sharp contrast to the information which has become available to advertising in this country by reason of the work of the A. B. C.

"But the Bureau needs the support of every important user of publication space. In my opinion it has not begun to reach any limit of its usefulness. I consider it one of the most fundamental advertising expenditures our company makes."

Guy C. Smith

BERNARD LICHTENBERG

***Vice President*, Alexander Hamilton Institute**

"Buying advertising space in newspapers and periodicals without referring to A. B. C. circulation audits is like buying a pig in a poke. The old time farmers never traded horses blind.

"The earnest attempt on the part of such organizations as the Incorporated Society of British Advertisers, the Australian Association of National Advertisers, the German Reklame-Schutzverband, and the Mexican Associacion de Annunciantes, among others, to form an Audit Bureau in their countries based on our own A. B. C., is an indication of the fact that thoughtful advertisers around the world have seen the worth of such an organization."

Bernard Lichtenberg

● Twenty years ago there was chaos in advertising. Nobody knew what his dollars bought—whether a thousand readers or ten thousand. Nobody, except by infinite pains and shrewdness, could find out.

Could advertising, on that basis, ever have grown to its present importance? Would business ever have rested its trust in a sales weapon of metal so doubtful in assay?

Hardly, think men who today direct advertising expenditures that total millions. Through such leaders as these the Audit Bureau of Circulations came to be organized. And largely through the activities of the Bureau, there is order today in the buying of advertising space.

Once a year now, into almost every important publication office, go the auditors of the A. B. C. Every circulation record is open to them.

To no publisher, no agency are they responsible. They work directly for the Audit Bureau of Circulations, and on the directorate of this institution a majority must be advertisers.

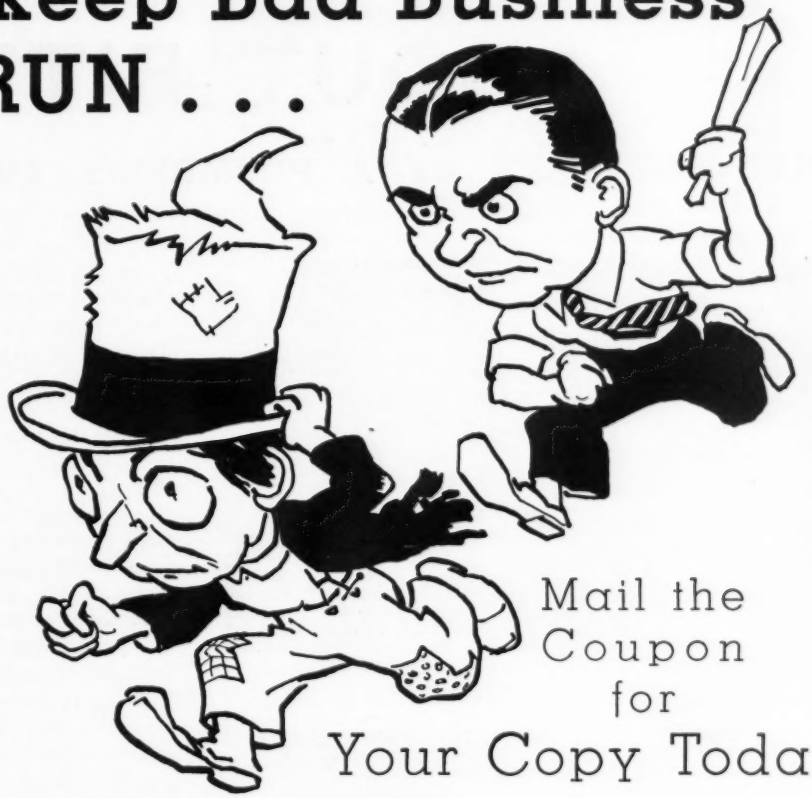
The Bureau's Audit Reports thus give the detailed findings of experts controlled by advertisers. They bring to light the complete circulation facts.

Can any budget yield full returns without use of this only recognized method of appraising advertising space?

Can any important advertiser, whether national or local, afford to be unrepresented upon the membership roster of the Audit Bureau of Circulations?

An Advertisement by the
AUDIT BUREAU OF CIRCULATIONS
Executive Offices • • • Chicago

Our RED BOOK shows you how to keep Bad Business on the RUN . . .



Mail the Coupon for Your Copy Today

THIS is the year for planned selling . . . for the individual and company that goes after business in a sure and systematic manner. How to do just this . . . how to keep busy selling and installing Venturafin Unit Heaters . . . is the cheerful story told in the American Blower Red Book. It's a story you want to hear whether you are handling any line of unit heaters at present or not.

The Red Book gets right down to facts about the unit heater business. It shows you *where, when* and *how* to get this business. It contains actual samples of direct mail literature, newspaper advertisements, installation data, and other helps that have been purposely planned for your use . . . *and they won't cost you a cent!* Complete details, also, about American Blower's extensive national and trade journal advertising campaign are contained in this book. Send the coupon for your copy today.

Venturafin Unit Heaters for Economical and Controlled Heat

AMERICAN BLOWER CORPORATION
6000 RUSSELL STREET
DETROIT, MICHIGAN

Gentlemen:
Please send me a copy of the *American Blower Red Book* at once. I understand I will not be obligated.

*Name*_____ *Firm*_____

*Street*_____

*City*_____ *State*_____

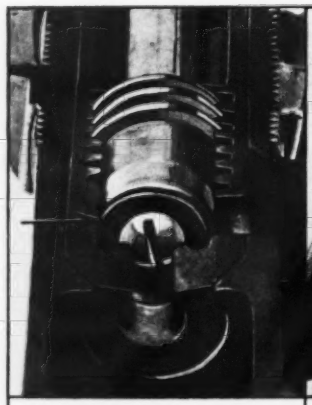
AMERICAN BLOWER CORPORATION, DETROIT, MICH.
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONT.
BRANCH OFFICES IN ALL PRINCIPAL CITIES
(1171)

HEAT WITH UNIT HEATERS

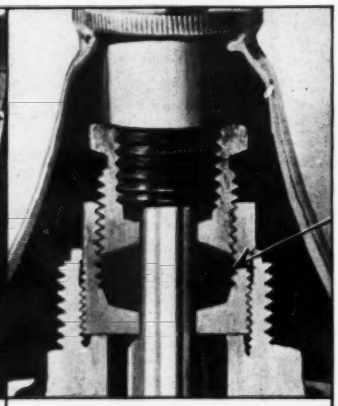
American Blower
VENTILATING, HEATING, AIR CONDITIONING, DRYING, MECHANICAL DRAFT

INSIDE FACTS ABOUT FITTINGS

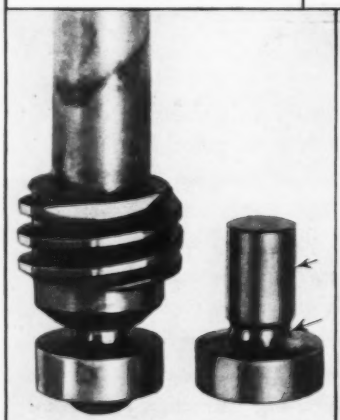
THAT ARE PART OF A PLUMBER'S SUCCESS STORY



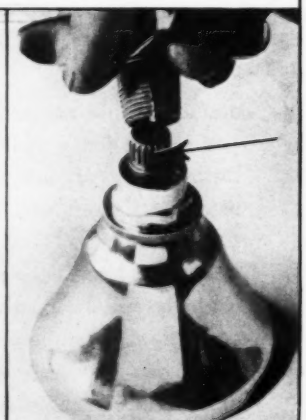
Encased disc washers make a water-tight joint. The washers are made of a hard, non-swelling composition.



Only the best and most serviceable packing available is used in Kohler valves. One of many details that make efficiency.



The swivel disc on Kohler valves has a long shank extending ½" into the heavy stem, which means quiet action.



Interchangeable handles on Kohler fittings are splined to eliminate troublesome top or side screws.

YOUR job isn't over, by a long shot, when you put in the last fixture and fitting. Second calls waste time, waste money, harm reputations. The best way and the safe way is to find out for yourself which fittings are right, and *stay* right, and then use them to build your business.

Here are some of the reasons why so many successful plumbers are sticklers about Kohler fittings on all jobs, large and small. First, Kohler fittings are made of real red brass, containing an extra amount of virgin copper. Pick up a Kohler spout or faucet. Notice its weight. Extra metal, plus hair-breadth accuracy in manufacture, means deep threads that are always in mesh, water-tight joints, cleaner castings, and a smoother surface.

You may have discovered, too, how much the clear, smooth finish of Kohler fittings, their character and style, do to keep the customer satisfied. Kohler chromium on all cast brass pieces is applied directly to the metal itself. There is no undercoating of nickel. Every fitting stays in the plating bath for a minimum of 30 minutes. The plating is thicker, more uniform—more durable, and easy to clean.

Another thing to notice about Kohler fittings is the lack of gadgets and useless ornament. . . . Handles turn quickly, easily, at the touch of the fingers. Spouts swing from the top of the yokes. Kohler Co. *Founded* 1873. Kohler, Wis. Manufacturers of Kohler Electric Plants. *Branches in principal cities.*

The beauty of Kohler fittings is typified by the graceful handles and the forceful, flowing lines of the escutcheons.

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS

THE FOURTH DIMENSION IN FITTINGS

QUALITY..

DESIGN..

Semler Sure Fit Flanged Screwed Fittings have been designed in *four dimensions*.

Not only were they conceived to be more practical but the fourth dimension, *quality*, was the first consideration which led to their ultimate manufacture.

Clean, accurate threads, perfect alignment, good materials, all go to make The Semler Fitting easier to work with, more economical and far superior in service rendered.

You owe your customer a Semler installation and when you give it to him he'll owe you respect and good will for keeping his interests at heart.

Investigate The Semler Fourth Dimension before you do your next piping job.

SURE-FIT FITTINGS
SEMLER
STEAM FLANGED SPRINKLER DRAINAGE

SEMLER COMPANY
JEANNETTE-PA.
SURE FIT FITTINGS

No. 8100–T

These Te-Pe-Co Hospital Fixtures may now be had in

VITREOUS CHINA

THE larger plumbing fixtures used by hospitals have always been made in porcelain because of the difficulties and uncertainties encountered in "working" Vitreous China beyond a certain size. Now Trenton Potteries Company engineers have solved this manufacturing problem and the large Vitreous China pieces here illustrated mark the beginning of a new era in hospital sanitation.

No. 8100-T—Vitreous China Surgeon's Washup Sink. Size 37" x 23" and 30" x 20".

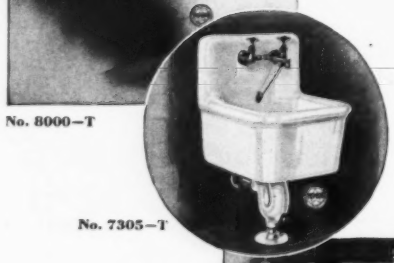
No. 8000-T—Vitreous China Surgeon's Lavatory with Instrument Trays. Size 36" x 24" and 28" x 20".

No. 7305-T—Vitreous China Hospital Slop Sink. Size 24" x 22" and 22" x 20".

No. 8612-T—Vitreous China Plaster Sink with Drain Board. Size 37" x 27".

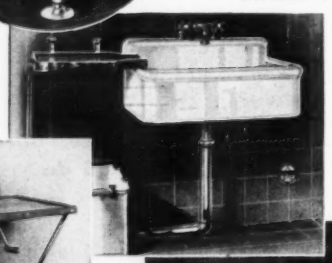
No. 8620-T—Vitreous China Hospital Pack Tray. Size 30" x 26" and 26" x 26".

No. 8350-T—Vitreous China Infant's Bath with Drain Slab. Size 42" x 28".

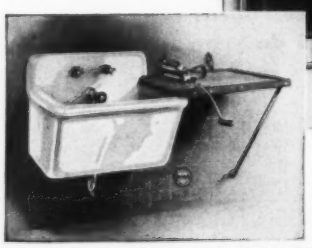


No. 8000–T

No. 7305–T



No. 8612–T



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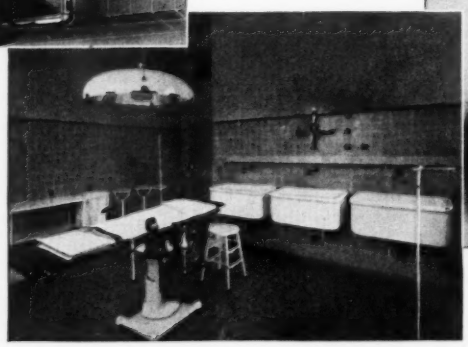

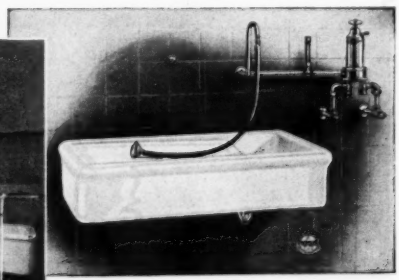

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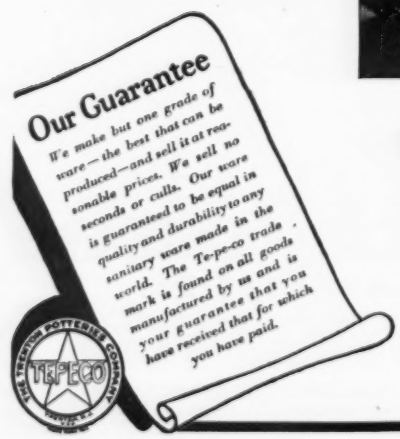
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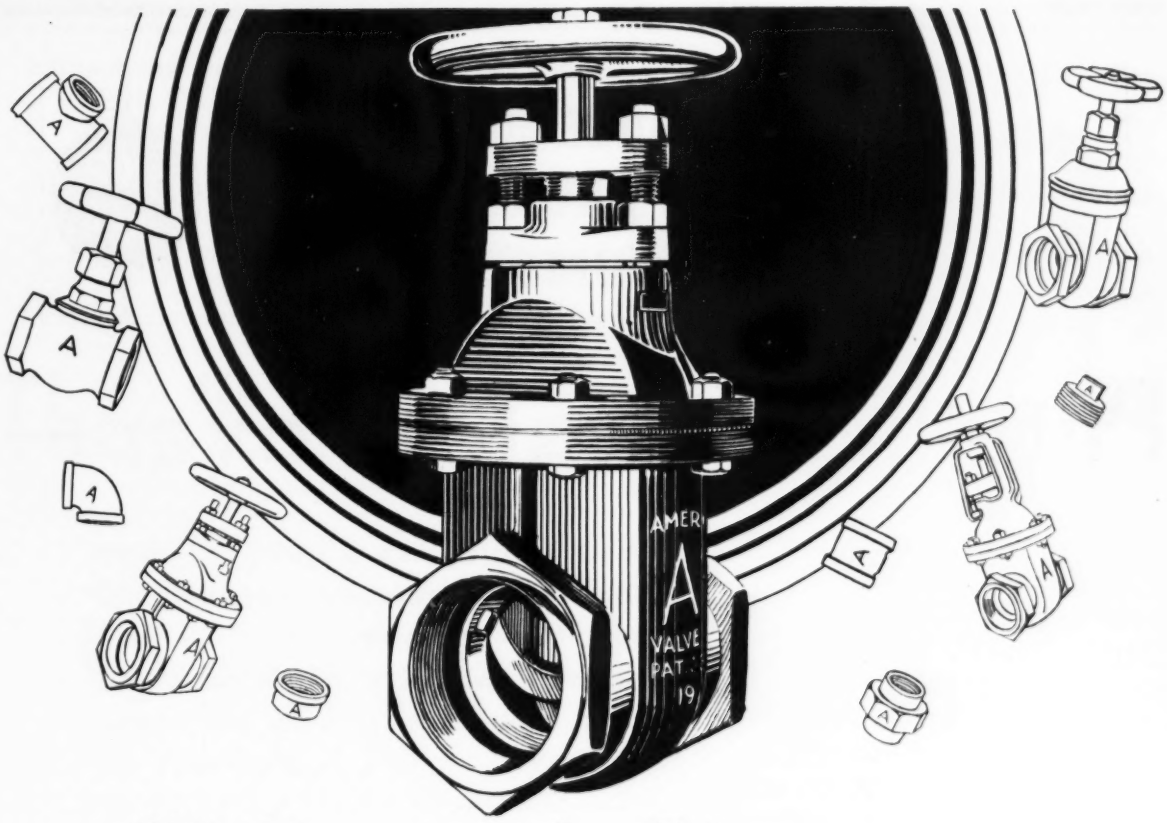

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AN old friend—a new ally. 30 years of sustained quality in valve manufacturing supported by a new management, well-known to the trade. Add to this a most complete line of pipe fittings; plus a large modern plant at Coxsackie covering 30 acres and 75,000 square foot of floor area—where modern products are produced at prices in keeping with the times.

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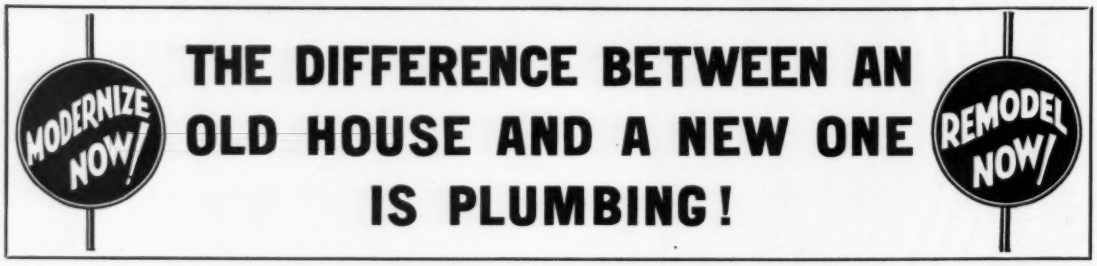
Founded 1901 *WORKS: Coxsackie, N. Y.*



Put these posters over—

Already, more than 20,000 of these window posters featuring plumbing and heating, the things you have to sell, have been distributed to plumbing and heating contractors, jobbers and manufacturers.

They are being used in show rooms, in windows, on trucks and automobiles and they are also appearing on letterheads, billheads, envelopes, in advertising matter of all kinds.

Ask about the Remodeling Charts Now!

One group of contractors is featuring them in full page newspaper advertisements. They form the keynote of this campaign that is selling plumbing and heating to home and building owners.

You ought to be using them at every available opportunity!

DOMESTIC

1900 Prairie Avenue » » »

They'll help put sales over!

Send only four cents in stamps for either one of the posters or six cents for both. Print the slogans on your letterheads, envelopes, etc.

Get a quantity of them and keep them looking fresh and new all the time. You can get quantities at the following cost prices:

50 plumbing posters and 50 heating posters .	$1.00
25 plumbing posters and 25 heating posters .	.50
10 plumbing posters and 10 heating posters .	.20

These prices include postage and stickers enough to put them up. Get in line with this drive on remodeling! Put these posters over — they'll help put sales over!

Order them today — start to use them *now!*

Have You seen the Guide to Remodeling Sales?

ENGINEERING

« « « Chicago, Illinois

YOU WOULDN'T USE A HORSE AND BUGGY

Ridiculous of course but do you still use horse and buggy methods of handling your piping jobs?

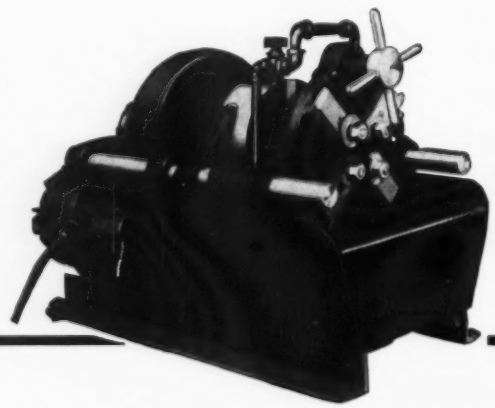
In this day of survival of the fittest and keen competition efficient time and labor saving pipe machines are absolutely necessary.

"TOLEDO" No. 999 and No. 1000M, ½-inch to 2-inch power pipe machines will help any contractor to get his piping on a profit paying basis.

Fast, economical to operate and produce perfect work with a minimum of labor and time—these efficient "TOLEDO" machines will soon pay for themselves in any shop or on any job.

You can no longer afford to use old, obsolete equipment at any price for it is eating up your profits and will only lead to losses at the end of the year.

"TOLEDO" No. 999 or 1000M, ½-inch to 2-inch power pipe machines will bring your equipment up-to-date and increase your profits by reducing your cost of cutting and threading enormously. You cannot afford to be without one of these machines any longer.



"TOLEDO" No. 999 ½" TO 2" PORTABLE POWER PIPE MACHINE $275.00
(West of Rockies, $288.75)
"TOLEDO" No. 1000M ½" TO 2" PORTABLE POWER PIPE MACHINE $350.00
(West of Rockies, $367.50)

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Please send me full information on "Toledo" equipment

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D.E.

Our Industry

DOMESTIC
ENGINEERING
AUG. 8, 1931

Everyone wants more business. Yet a few years ago when everyone had more business than ever before, profit was still an exceptional rather than a customary experience.

It is worth recalling that when the plumbing and heating industry, like the rest of the building field, had volume, it wanted fewer orders but more profitable ones. Now volume is regarded as the essential necessity—but is there any assurance that corrective measures have been taken that will produce a profit from the next period of filled order books?

Lax credit practices were regarded as a fundamental fault when orders were heavy. Has any real improvement been made in handling credit which will carry through into the next prosperous period and thus guarantee more profit to manufacturer, wholesaler or contractor?

Lack of a proper discount to the retailer who pushes sales, while his competitor without that extra expense, can buy at the same price, was blamed for some of the losses of a few years ago. Yet nothing has been done to correct this.

In his own way, every contractor, wholesaler or manufacturer who deserves the title of a business man, has been trying to improve his position.

But unless the industry uses this present period to advantage, volume will return but profits may not.

Walk down the better residential streets of your community and take note of the number of lawns which show that the owner has spent time and money on their upkeep. At the same time, note how many of these lawns are suffering from lack of proper and regular watering. The result will be a list of likely prospects for lawn sprinkling systems and if you do not cultivate them, you are overlooking a very worth-while branch of your business

Sprinkler Piping Designs as Described by an Experienced Contractor

By W. W. STEVENS

THERE is more to the installation of sprinkler systems than merely the cutting and fitting of pipe. Certainly it is a pipefitter's job, but as far as the complete project is concerned he comes in after the success or failure of the installation has been determined. In other words, he follows definite instructions and plans which must be decided upon before a single piece of pipe is cut. Good practice requires that these be worked out in the plumbing contractor's drafting room and the one who designs the system obviously must have a first class background of experience with sprinkler work and the sizing of pipes. Because of his familiarity with water pressures, friction and the figuring of same, the plumbing contractor is the logical one to carry on this type of work in preference to landscape contractors, handy men or gardeners. However, even with these qualifications, the plumbing contractor who has never installed sprinkler systems should study the work very carefully and wherever possible profit by the experience of others. This especially is important because sprinkler systems are show jobs and attract considerable attention. A satisfactory job advertises itself in an entire neighborhood. The same applies to a faulty installation. The established contractor who plans to branch out into this class of work cannot afford to put in a job that does not give him the best kind of advertising through its operation.

This article is the first of a series which gives the

Fig. 1—At the right is a view of the front lawn sprinklers which are served by the heavily shaded pipe in the sketch

Fig. 2—Below are the valve wheels on long stem valves which operate the front lawn and parkway sprinkler circuits. They are on the side wall at the right of the doorway seen in Fig. 1

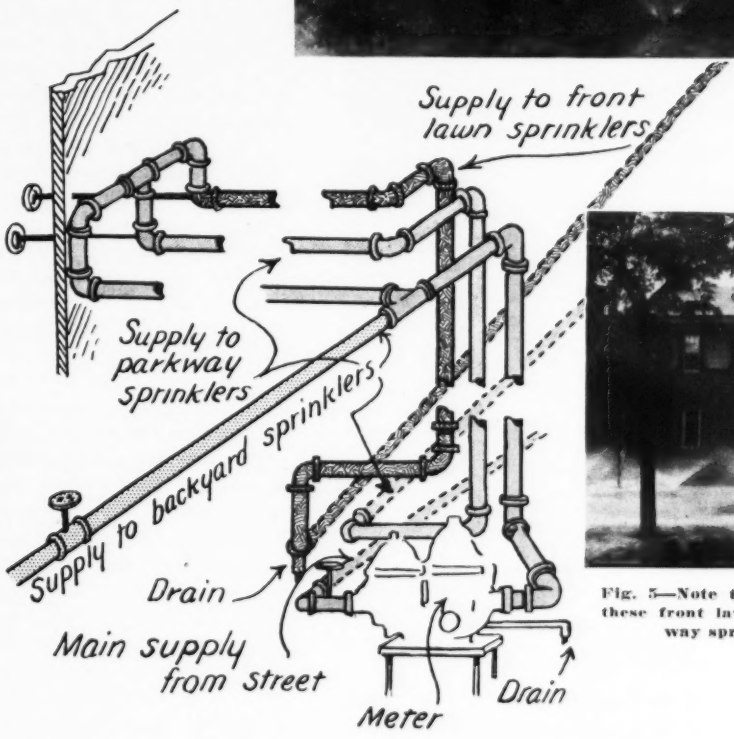


Fig. 5—Note the piping for these front lawn and parkway sprinklers

Fig. 3—This valve is located on the back porch and operates the sprinklers in the rear lawn seen below

Fig. 6—The sketch in the center corresponds to the photo below. The shaded lines designate the several circuits

Fig. 4—Below are the backyard sprinklers. The piping diagram in the center of the page shows the supply line

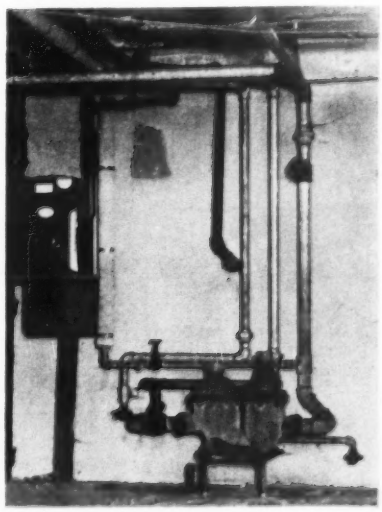


Fig. 7 — Right, piping on the basement front wall

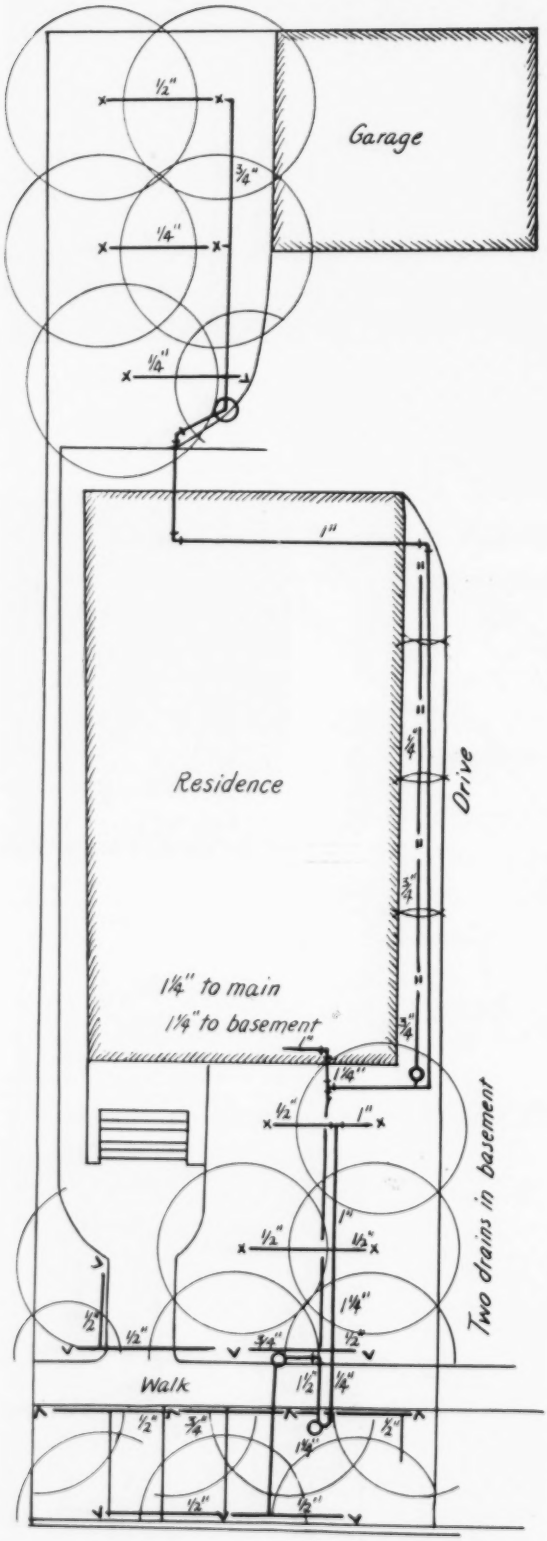


Fig. 8—This is not a theretical piping layout. It is a practical working design and the installation was made from it. Note the piping at the sidewalk to prevent the operator from getting wet

experiences of Andrew McCann, a Chicago plumbing contractor who has specialized in sprinkler installations. The information presented covers actual installations in careful detail and is designed to cover points which ordinarily are obtained only through costly experience.

Mr. McCann has installed jobs in the entire Chicago area. However, the several systems described here are within a few blocks' distance of his office and shop, in one of the very good residential sections on the south side of Chicago. At the head of this article is a view of the first job which we will consider. Figs. 1 to 7, inclusive, give a pictorial description of most of the features. The building and grounds are moderate in size compared with others in the neighborhood. It indicates that the sprinkler possibilities contained in the smaller homes are just as desirable to the owner and the contractor as those in connection with big estates.

The system and grounds were divided into three sections. Each is served by a separate supply main and valving arrangement. They consist of the sprinklers watering (1) the front parkway space, see Fig. 5, (2) the front lawn space between the public sidewalk and the building, see Fig. 1, and (3) the rear yard space directly in back of the building, see Fig. 4. The heart of the system is illustrated in the isometric piping drawing shown in the center of the several photographs and labeled Fig. 6. The corresponding photograph is Fig. 7.

A single supply is brought into the basement from the main in the street. It goes through the front wall of the building and is indicated in the drawing with the arrow and label "Main supply from street." In the photograph of Fig. 7 it is seen as the lowest horizontal pipe fitted with a valve and connected to the lefthand side of the meter. Coming out of the righthand side of the meter, the main supply rises and at about 5 ft. above the floor is valved again. Incidentally, the domestic supply is taken off of this line just above the meter and is seen as the insulated pipe running vertically alongside of the right of the gas meter. The main, still 1½ in. in size, branches, one line running to the left wall of the building, where it forms a header supplying the two front circuits. The other branch is reduced to 1¼ in. and runs straight back to the rear of the house, serving the back yard shown in Fig. 4. This is indicated by the line marked "Supply to back yard sprinklers." The wheel and stem of the valve on this line is seen in Fig. 3, and it controls all of the rear sprinklers. It is close to the wall on one side of the rear porch so that it is both easily operated and out of the way. As shown, all of the sprinkling may be done by the owner from a comfortable easy chair at the turn of a valve removed from the sprinkler heads where possibility of getting wet and dirty is eliminated. This certainly is a contrast to the hose method of sprinkling, which should impress any home owner who spends his spare time in hand watering.

Returning to the supply header, it is to be noted that two branches are taken off of it, each being controlled with long-stem angle valves. These stems extend through the brick wall of the house so that the valves may be operated on the outside. The wheels are shown in Fig. 2 and are located at a distance of about two feet in back of the face of the front wall of the building. Referring to Fig. 1, they are just around the righthand

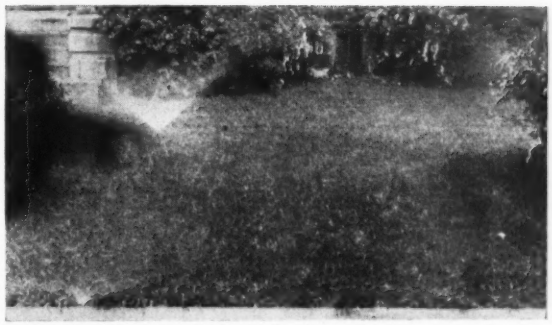
corner on the side wall. The shading of the pipe lines in the drawing makes it possible to follow easily the courses these two branches take and the photographs at the ends of the lines indicate the sections of the lawn which are served by them. In other words, all of the photographs on the page are located in relation to the drawing so that the reader may visualize easily and at a glance the entire job just as if he were on the location inspecting it.

Another feature of the installation has to do with draining the system so that the pipes may be protected from freezing in the winter. Note that the two front supply mains are supplied with drain valves. These are located at the low points in the lines. All of the front piping to the sprinkler heads is pitched to these points. Mr. McCann makes a practice of burying the end of the longest line at least 12 in. below the surface of the ground. He allows a pitch of 1 in. in ten ft. and uses bricks for pipe supports in obtaining accurate grade. The spacing of the brick supports depends, of course, upon the size or strength of the pipe. Care should be taken to prevent sagging of the lines under the weight of the dirt back-fill to the extent of allowing water pockets to form between supports.

As seen in Fig. 7, the supply lines to the front go through the wall at about 18 in. above the floor. The basement is about 7 ft. 6 in. high and the ground level at the building is about 1 ft. below the basement ceiling. This means that the pipes at the face of the building are buried 6 ft. 6 in. below the ground level. However, the front lawn slopes to the public sidewalk, making a drop of about 2 ft. 6 in. in the 20 ft. or so from the building to the walk. This still leaves 4 ft. between the sidewalk level and the low point of the supply pipes in the basement. Then subtracting 1 ft. for coverage at the end of the line and 4 in. at the most for minimum pitch, 2 ft. 6 in. remain. Accordingly, the pipe might have been run through the wall at a height of about 2 ft. 6 in. above where it was placed. When digging represents labor, pitch and elevations should be worked out very carefully before the job is started. On other jobs with high basements, the drainage might be reversed because of steeper terraces and natural slopes. In such cases, it may be necessary to drain into a gravel sump somewhere along the supply main, either at the end or at an intermediate point. In Fig. 11 a meter pit is shown and the mains in the front of the building are pitched so that the water standing in the lines is run into it when the system is taken out of service for the winter. The floor of the pit is composed of dirt and gravel so drainage from the pit is no problem. Also, the meter is placed high above the floor.

Fig. 8 shows a working drawing which was made in Mr. McCann's office and which was followed in the field when the piping was installed. One of the interesting features of this is in the valving arrangement. By following the piping, it will be seen that the parkway sprinklers are operated by the valve

(Continued on Page 131)



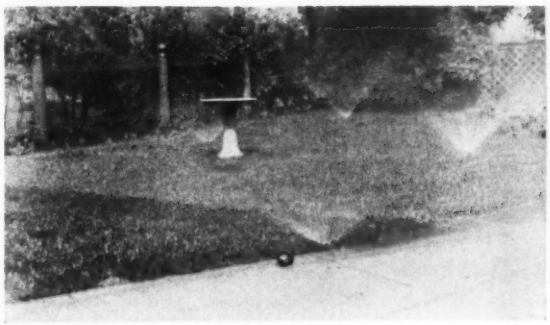


Fig. 9—The top photograph was taken on the Tuesday afternoon following the Saturday morning when the last piece of sod was replaced. Try to find evidence showing that the work had been done

Fig. 10—Immediately above is a view of the rear space shown in the drawing opposite. Here also, it is impossible to detect where the pipe lines were run, illustrating that a job can be done at any time during the year without injury to the lawn

Fig. 11—Immediately below is a job where it was necessary to install the meter in the parkway. A pit was made which is approximately 4 ft. deep and 4 ft., 6 in. square. This comprised the major part of the work on the job and in order to make the connections, it was necessary to tunnel out into the street

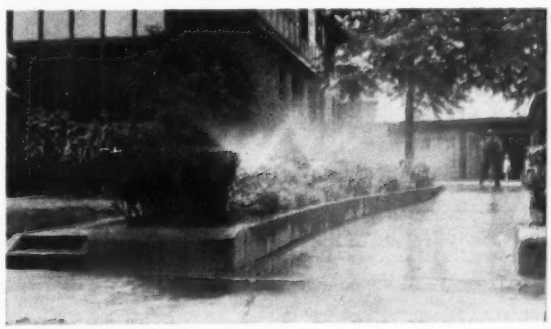


Fig. 12—The view at the right shows one circuit of the system in operation. Note that elevated sprinklers were installed to clear the shrubs. This line is operated by a valve alongside of the front walk on the side opposite the sprinklers so that the attendant will not get wet. This is important in assuring satisfactory jobs

Gas Enters House Cooling and Air Conditioning Field

Research is bringing air conditioning within reach of the individual home owner. Three houses are now being air conditioned with gas for test purposes. The development is of vast importance to the heating contractor, in view of the new co-operative policy of the gas companies

By
EUGENE D. MILENER*

RESEARCH and developments during the past year have definitely put gas into the picture as a factor in house cooling and summer air conditioning. This marks a step in the utilization of gas that, it is predicted, will rank in importance with the general adoption of gas to each of the other major home uses such as cooking, water heating and house heating.

However, the entire technique of summer air conditioning, in homes especially, will not replace other fuels. Cooking, water heating, house heating and refrigeration when they are not done with gas, are done with other fuels. They are all necessities in every household. Summer air conditioning, however, is different. It is not as yet a necessity in the generally accepted sense of the word; in fact, it is a comfort entirely new to all householders. Therefore, by making it possible to sell and utilize gas for residential summer air conditioning we are for the first time, in any major application, selling gas without doing so at the expense of some other purveyor of fuel. We are opening up an entirely new outlet for gas, and, fortunately, one that fits in almost perfectly in helping to build up the present load factor of production and distribution facilities.

That is the important thing from the strictly gas utility point of view, but, from the broader viewpoint, we are presenting an entirely new comfort and luxury to the home owner that has heretofore been practically as far beyond his reach as it was beyond the reach of the first settlers of this country when they built and equipped

*Presented at natural gas department, American Gas Association convention, Memphis, Tenn., by Mr. Milener, who is Industrial Research Representative, American Gas Association, New York, N. Y.

their homes at Jamestown with the meager comforts then available.

Another interesting angle to the development of gas operated summer air conditioning is that, as it grows, it will be an important contribution by the gas industry to that group of entirely new articles and services upon which leading economists say a renewed and sustained prosperity in this country will have to depend.

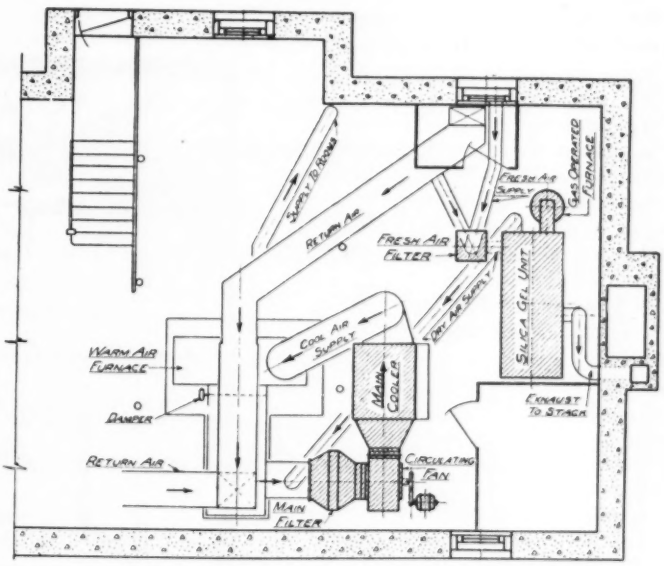
What is house cooling and summer air conditioning? We might answer that question by comparison and say that house cooling and summer air conditioning is the opposite of house heating and winter air conditioning. The combination of the two give year round air conditioning. In winter we produce comfort by heating the air and then humidifying or moistening it. In summer we produce comfort by cooling the air and then dehumidifying, or drying it. Cleansing and circulating the air contributes to proper air conditioning at all seasons of the year. The above refers to air conditioning for human comfort. There are, of course, many industrial processes where conditioned air is used regardless of the season of the year, but these special applications will just be briefly touched upon here. For the purposes of this paper air conditioning will be considered as applying to cooling and to dehumidifying or drying the air in buildings for comfort purposes in summer.

The gas industry, especially with natural gas, has built up a tremendous winter load through house heating. This has resulted in an unbalanced load condition and a low load factor in some systems. Many attempts have been made to create uses for gas that will balance this large winter load and thereby raise the load factor. This would result in increased revenue and profit without increasing the investment required in production, transmission, or distribution equipment. But experience has proved, unfortunately, that almost all potential uses for heat that have been investigated exist only in the winter time or else are all year round uses that tend to become greater in the winter. House cooling and summer air conditioning, on the other hand, has the characteristic of requiring energy only in the summer, the warmer the weather the greater being the demand for energy.

A Summer Use for Gas

It is largely because of these facts that the committee on industrial gas research of the American Gas Association came to the conclusion that there is no more important new use for gas than that of building cooling and summer air conditioning. Two years ago, in its annual report, it called attention to this fact and recorded the efforts it was making to devise ways of putting gas into the picture as a source of energy for this service. Last year, in its annual report, it again pointed out the extreme desirability of this load and reported the very satisfactory progress that had been made in air conditioning large commercial buildings with gas, and the research that had been done with the idea in mind of eventually applying the results to the broad residential field.

I am happy to be able to state, at this convention, that the work has now passed the preliminary laboratory stage, as well as the early development stage, and that under the supervision of the committee on industrial gas research three typical dwellings will be air conditioned this summer with gas. These newly developed units will be operated throughout the season and should demonstrate the practicability of the process that has been developed, as well as the gas load characteristics, and give to all interested persons the opportunity to see houses actually air conditioned with gas and to study the possibilities of building up summer gas load in this manner.



PLAN SHOWING SOUTH END OF CELLAR AND PRESENT HEATING EQUIPMENT. SHADED AREA SHOWS SMALL ADDITIONAL SPACE FOR SUMMER AIR CONDITIONING EQUIPMENT.
COMMITTEE ON INDUSTRIAL GAS RESEARCH

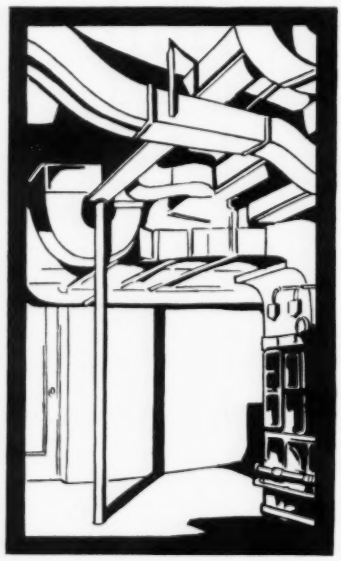
It should be borne in mind that up to this time no gas has been sold in the summer time for air conditioning in buildings. Quite a number of A. G. A. approved furnaces condition the air in the winter time in a very satisfactory manner. However, the load factor of these furnaces has the characteristics that result from house heating, as no gas is burned in the summer.

Research by the Gas Industry

Let us inquire into how gas can be used to air-condition houses during the warm summer months. In sponsoring research and development work in summer air conditioning the gas industry is in a peculiar position. Almost the entire technique of summer air conditioning as far as it has gone has been built around the use of power, generated by motors or by individual steam turbines. This technique, and the equipment built for interpreting it, has nearly all been the contribution of manufacturers of air-conditioning equipment. The action of the committee on industrial gas research represents, I believe, for the first time, a concerted movement on the part of an industry interested primarily in the sale of energy to analyze the entire summer air conditioning situation strictly from the viewpoint of the

adaptability of that energy, and deliberately provide ways and means to begin selling its energy for that purpose.

It was found that summer air conditioning had been developed, using power, to the point where a sizeable number of installations had been made in different sections of the country and many had been in operation through several seasons. These were practically all in commercial or public buildings, theaters, restaurants, etc., where an agreeable atmosphere attracted a sufficiently large increase in the number of customers to pay the operating and overhead cost of the systems. It was found that apparently there are limitations to the extent to which power operated air conditioning equipment can be generally applied, and that these limitations have effectively barred the introduction of summer air conditioning into residences.



It was also found that there were, within the heating and ventilating industry, several schools of thought regarding the best methods of cooling and dehumidifying air. One school of thought holds that both of these operations should be done only by means of refrigeration. Another school of thought holds that cooling and dehumidifying, being entirely separate operations, should be recognized as such and performed separately and distinctly either by refrigeration or by any other means that present themselves.

The almost exclusive use of refrigeration for air conditioning up to this time has been probably due to the fact that power has been the sole source of energy that has been available. While *cooling* can be done directly by refrigeration, *dehumidifying* can only be accomplished by refrigeration in a very indirect and roundabout manner. Please bear this important fact in mind —that by far the greatest amount of energy required on an air conditioning job is that used for *dehumidifying* and that the energy used for the necessary *cooling* of the air is the smallest amount.

The gas industry through the committee on industrial gas research has been exerting every effort to encourage the development of large size gas refrigerators suitable for both regular commercial work and for air conditioning. While considerable progress has been made, no large gas refrigeration machines have yet been produced that are suitable for air conditioning by merely replacing power refrigeration machines. The research committee, deeming it to be its function on behalf of the gas industry to investigate every possible way in which gas heat energy can be utilized for summer air conditioning, found that besides being able to utilize gas refrigeration machines if, as and when they are developed, it is also possible to utilize gas to dehumidify air directly, a thing that it is impossible to do when using power. In other words, it was found that power energy is adaptable to cooling and dehumidifying buildings only by means of refrigeration, but that gas heat energy not having the limitations of power energy is, in addition, adaptable to dehumidifying air directly and thereby utilizing an air conditioning cycle that is entirely new.

The research committee found that there are also several schools of thought in the heating and ventilating profession concerning methods of introducing conditioned air into a room. (Let me say that all authorities agree that the only practicable way to distribute conditioned air is by means of ducts and registers, with the help of fans.)

One of these groups holds that air should only be introduced into a room at or near the ceiling and exhausted near the floor. Another group holds that that method, called the downward method distribution, is not only unnecessary from a technical standpoint, but that its general adoption would forever prove a handicap to the ultimate growth of air conditioning by making it impossible to use the thousands of conventional warm air heating systems now installed. They contend that an upward system of distribution, the kind that has been used in farm air heating for years, is correct technically in that it takes advantage of the well-known fact that as air in a room becomes warmer it rises, and that from a practical standpoint it immediately makes available for use in summer air conditioning every well laid out warm air system in the country, possibly with minor changes in the location of exhaust grilles.

There has recently, in the press, been some rather severe criticism of power operated, refrigerated buildings in which the air has been conditioned. This criticism has emanated from the public, from engineers, newspaper critics, trade paper writers and others. It has even become a standard joke on the vaudeville stage. It has been contended that buildings have been primarily chilled instead of being conditioned, and that one was literally "hit in the face" by the cold upon entering such buildings and is again "hit in the face" by a hot, sultry blast upon leaving the building and going into the street.

These criticisms have caused the research committee to go quite carefully into the subject and plan all its activities so as to avoid these pitfalls.

Conditions to Be Met

Further, it is true that the contrast between outside and inside conditions is a major factor in deciding what temperatures and humidities should be maintained. Consideration must be given to two classes of people: those who enter the conditioned area for only a short time, and those who spend the entire day in the conditioned space. If the contrast is too great, the first class is subjected to two distinct changes, the first on entering the area may not be an unpleasant one except in extreme cases, where the effect is that of walking into a refrigerator; but the second, upon leaving, is a severe one. This latter is generally the result of too great a

temperature difference accompanied by a saturation of the clothing, effected by a high moisture content in the conditioned area. This combination of moist clothing and sudden contact with high street temperature finds the body with no means of throwing off the heat load and the effect is quite noticeable.

These considerations point to the desirability of an inside dry bulb temperature differing from that of the outside air in the order of about fifteen degrees under maximum outside conditions and approaching more nearly to the outside temperature as the latter approaches 80 deg. F. If, in addition to a temperature differential as indicated above, a low relative humidity is maintained, sufficient to insure rapid removal of body moisture, the conditions within the area are extremely comfortable. Not only is the comfort of the transient population of the conditioned area catered to by reducing the entrance and exit shocks, but further, the resident population is cared for by providing the humidity potential necessary to keep the skin and clothing free of moisture and at a temperature insuring complete comfort.

The importance of this dryness factor can not be too greatly emphasized. Actual observations have shown that a feeling of invigoration is sometimes noticed when one passes into an area wherein the dry bulb temperature is somewhat higher, but the relative humidity is considerably lower than that just left. This is only true within certain limits, of course, but it is felt that the major part of discomfort attendant to high temperature is caused by accompanying high relative humidity. A consideration of the foregoing would seem to point to an established maximum of 85 deg. F., dry bulb, in the populated zone where the outside temperature is in the order of 100 deg. F. A relative humidity of 40 per cent at 85 degree temperature will prove comfortable under such conditions.

Temperature and Humidity

Whatever may be established as the maximum conditions to assure the comfort of people within the conditioned area, the fact remains that there are two factors which must be positively controlled by air conditioning equipment. These are the dry bulb temperature and the moisture content. The gas air conditioning system which has been developed controls these two factors; the first by means of evaporative cooling or indirect cooling using city water, or refrigeration, and the second, moisture content, by passing the correct amount of air through beds of silica gel which function as dehumidifiers by virtue of the great affinity of gel for water vapor in air.

The amount of air treated by the gel unit is determined by a moisture balance based on the moisture load within the area and upon the desired absolute humidity of the conditioned air. Outside summer conditions are such that it is essential from an economic standpoint to recirculate the air supplied to the conditioned area, adding fresh air only in sufficient quantity to supply the needs of the population within the area. The fresh air is added at the rate of from 10 to 30 cu. ft. M per person, depending on the requirements of the individual installation. The drying effect of the gel units may be applied to this fresh air supply or to the recirculated air stream.

The moisture removal effected by the affinity of silica gel for water in air takes place at what might be considered ordinary temperatures; that is, in the neighborhood of 100 deg F. It follows that in this system of air conditioning the cooling effect necessary is only that required for the removal of sensible heat originating in the conditioned area. This gives rise to a fundamental difference between this system of dehumidification and that of the conventional compressor system which depends upon reducing the wet bulb temperature of the treated air stream to correspond to the dew point fixed by the desired absolute moisture content. The refrigeration systems introduce the necessity for re-heat, since it is undesirable to bring air at low temperature directly in contact with the people in the conditioned area. The re-heat may be supplied through the medium of tempering coils or by taking advantage of the heat load in the conditioned area. The latter method necessitates admitting the air at the top, allowing it to settle down through the upper levels of warm air before arriving at the breathing level.

The various engineering considerations that have caused some of the leaders in heating and ventilating to develop and apply different practices, all are important because they have a bearing on the speed with which gas will be sold and also the extent to which it will be possible to finally develop the business. It is our determination to use to the fullest extent the valuable points of each practice. We are projecting gas into the air conditioning field with the determination to use the versatility of this source of energy to the fullest extent.

By definitely recognizing in the very beginning that cooling and dehumidifying are two separate operations, and setting out to do them separately, we believe that we are laying the foundation for an entirely new technique in the art of summer air conditioning. It is possible that this new technique will enable air conditioning to be sold to an extent that has not heretofore been dreamed of.

(To be continued)

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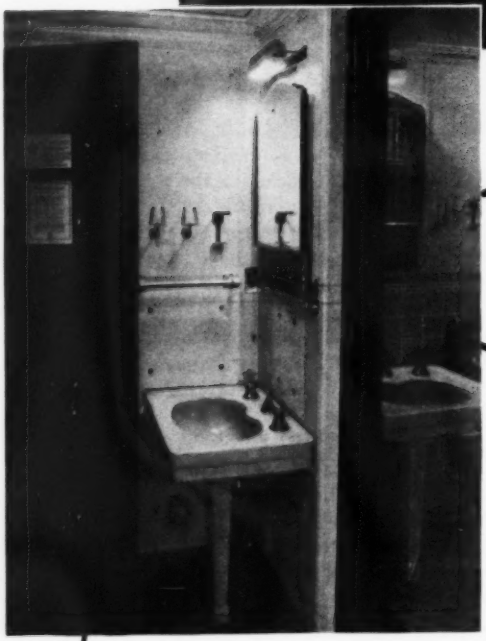
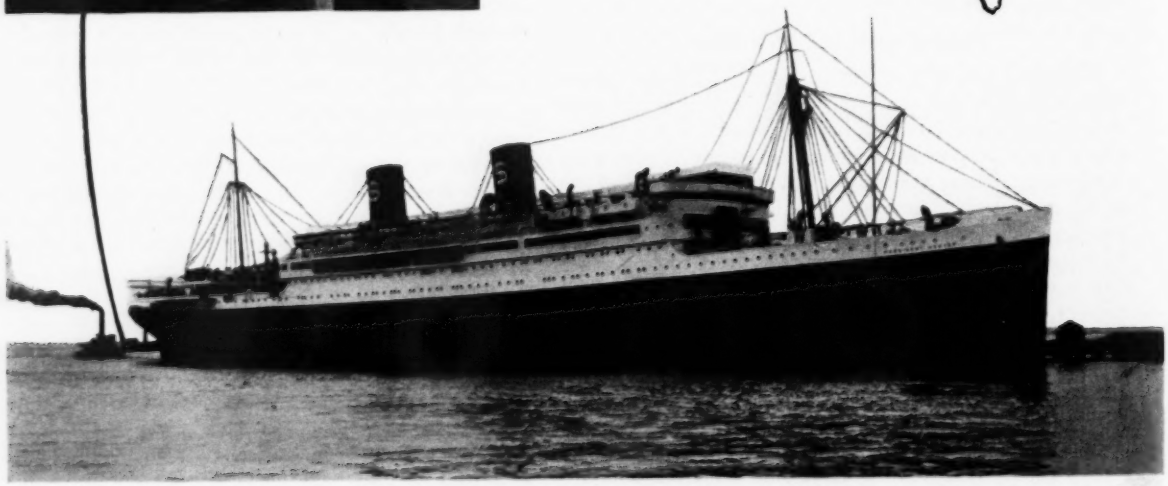
Almost all of the gas companies in this country are now more or less active in the promotion of the use of gas for house heating. Obviously the retaining of the present house heating load is fully as important as the acquiring of additional business.

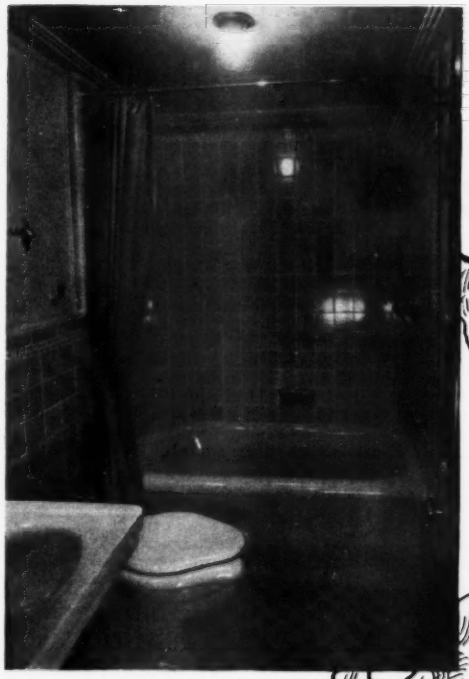


Two views of plumbing arrangements for cabins on the new liner President Hoover, recently launched

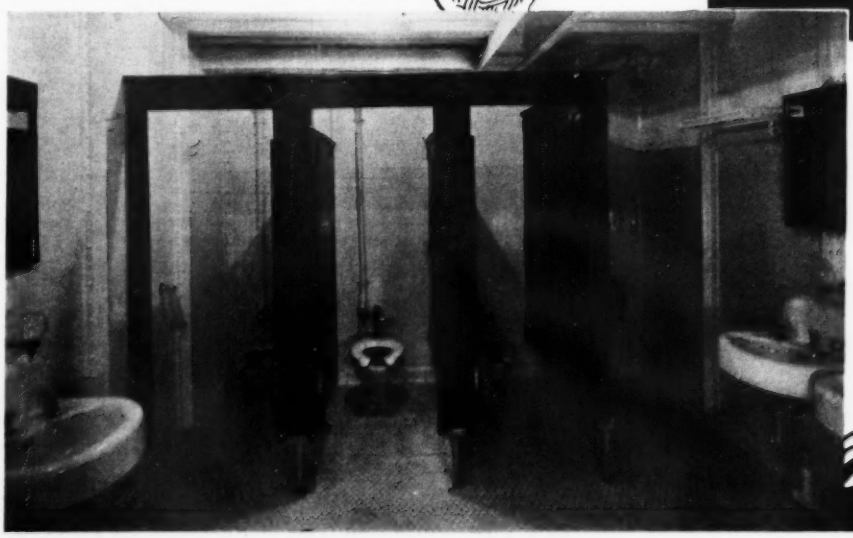


New Liner Has Luxurious Plumbing Appointments

ON AUGUST 6, the S.S. President Hoover, named for the president and christened by his wife, left New York on her maiden trip around the world. Modern in every respect, her plumbing arrangements are no less in keeping with the beauty of this largest American-built liner. The Noland Co., Newport News, Va., furnished the fixtures.



Below and at left, view of luxuriously appointed bathrooms for passengers



One of the washrooms, for the convenience of passengers on the "merchant princess," the S.S. President Hoover

Can You Figure Friction Losses in Pipe Accurately?

Experiments result in new method of computing losses in pressure that has proved reliable in tests

"THERE is wide misunderstanding in the plumbing trade concerning the laws governing rates of discharge from faucets, and the relations of pressure and discharge. This misunderstanding produces very great waste." These were the words of Professor George E. Russell in beginning his lecture on hydraulics at the fifth annual plumbing conference at Massachusetts Institute of Technology, which was held last February.

Professor Russell's presentation of his subject was so clear and concise, that we are using it as the basis for this article, also several different sets of data on different phases of the subject, which were worked out by him experimentally.

Of special value is the table worked out by Professor Russell, showing the loss in pounds pressure due to friction, in pipes of various size which deliver various volumes of water per minute.

Small Wrought Iron Pipe

Loss in Pressure by Friction, per 100 ft. of Length. Figures are in Pounds per Square Inch

Gallons per Minute	Nominal Diameter in Inches					
	½	¾	1	1¼	1½	2
1	0.9	0.2	.....	.....	.....	.....
				Pounds per square inch		
2	3.2	0.8	.....	.....	.....	.....
3	6.9	1.8	0.6	.....	.....	.....
4	11.7	3.2	0.9	0.3	0.1	.....
5	17.8	4.5	1.4	0.4	0.2	.....
6	24.8	6.4	2.0	0.5	0.3	0.1
8	42.6	10.9	3.4	0.9	0.4	0.1
10	64	16.5	5.1	1.4	0.6	0.2
12	90	23.1	7.1	1.9	0.9	0.3
14	120	30.4	9.6	2.5	1.2	0.4
16	.....	40	12.2	3.2	1.5	0.5
18	.....	48.7	15.2	4.0	1.8	0.7
20	.....	59.2	18.3	4.8	2.3	0.8
30	.....	120	38.7	10.2	4.8	1.7
40	.....	.....	66	17.4	8.2	2.9
50	.....	.....	98	26.1	12.4	4.3

Fig. 1—This table shows the loss in pounds pressure due to friction in pipes of various size which deliver various volumes of water per minute

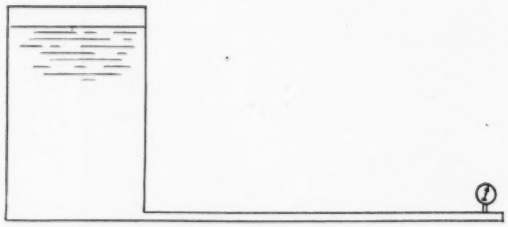


Fig. 2—A pipe is taken out of this reservoir with a free discharge through its open end as shown. The pressure indicated by the gauge is known as flow pressure

This table is shown in Fig. 1, and will be used in calculations which follow.

In working into his subject, Prof. Russell illustrated several fundamentals by diagram.

In Fig. 2 for instance, he showed a pipe taken out of a reservoir, the pipe having a free discharge through its open end. The pressure shown by gauge at the end of the pipe is known as flow pressure.

Now if this pipe be closed by a valve, the pressure will immediately show higher on the gauge. This is what is known as static pressure, and is due to the head of the water stored in the reservoir.

In Fig. 3 is shown a theoretical condition, where the rate of supply to the reservoir is exactly equal to the rate of discharge. Under this condition of constant head, the rate of discharge from the reservoir will depend on three factors,—the head, the size of the faucet and loss due to the friction of the faucet.

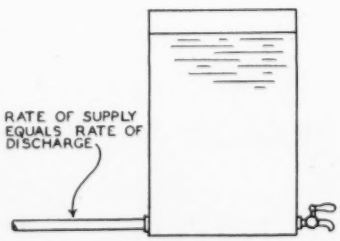


Fig. 3—Here is a theoretical condition where the rate of supply to the reservoir is equal to the rate of discharge

There is naturally considerable difference between different makes of faucets as to the loss that they produce because of the friction of the water in passing through them. Professor Russell has made this subject a matter of investigation. He selected a ½-in. faucet of regular commercial type, and tested it for losses due

By S. M. BARR

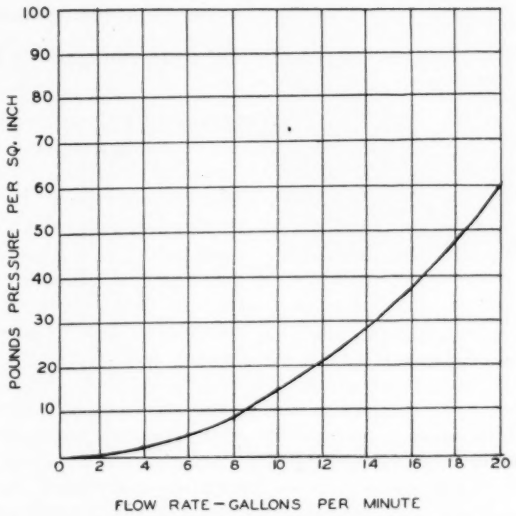


Fig. 4—This curve is used in practical friction calculations

to friction under varying rates of flow. These experiments developed the following results:

Rate of Flow Gallons Per Minute	Loss in Pressure Pounds Per Sq. In.
4	2
5	3½
8	9
10	15
15	33
20	60

A curve plotted from this information is shown in Fig. 4, and this also was used in the calculations which are shown further on.

The only weak point in the use of such a curve as this is that it actually applies definitely to one faucet only. This means that for some other faucet the pressure might vary, but for all practical purposes the information would be acceptable and dependable in making calculations for pipe sizes.

As we have seen, when the valve on the pipe leading from the reservoir is opened, the pressure shown on the gauge immediately drops, and this is due to friction.

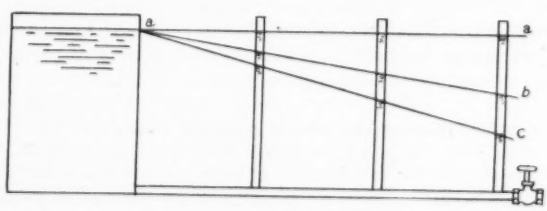


Fig. 5—The three water columns represent one way of measuring the static pressure in the pipe at the various locations. The lines aa, ab, and ac are known as the hydraulic gradient lines for the three conditions of flow

Referring to Fig. 5, the level of the water standing in the three branches will be a a when the valve is closed, that is, at the same level as the water in the reservoir. When the valve is partially opened, the slope will be the line a b, and when the valve is opened still further, the slope will be a c, which, as might be expected, will be still steeper.

These slopes depend upon four factors—length of pipe, roughness of pipe, velocity of water, and diameter of pipe.

Professor Russell in his lecture pointed to the fact that to get satisfactory results in the delivery of water at

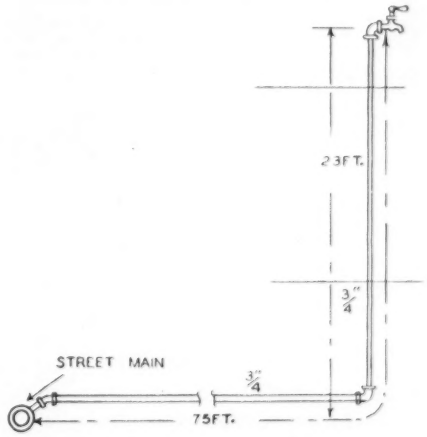


Fig. 6—Here is a practical problem regarding pressures and friction which any plumbing contractor might encounter

fixtures, the plumber should be able to estimate the losses in pressure due to the several factors that enter into the problem, and be able in this way to determine the pressure required at fixtures to deliver water at a certain rate of flow. To show how these problems may be worked out in practice, he worked out several examples, which we will give, as follows:

Problem 1:—A ¾-in. pipe runs 75 ft., with a vertical rise of 23 ft. What pressure will be required at the mains in the street in order to deliver 10 gallons per minute? See Fig. 6.

There are three losses that must be considered,—the loss in pressure due to the 75 ft. of pipe, the loss due to the height of 23 ft., and the loss due to the friction of the faucet.

Referring to Fig. 1, the loss per 100 ft. of ¾-in. pipe at 10 gallons per minute is 16.5 lb. $16.5 \times .75 =$ 12.5 lb. loss due to pipe friction. As 2.3 ft. of head represents 1 lb. of pressure, $23 \div 2.3 = 10$ lb. loss due to the rise of 23 ft. Referring to Fig. 4, the loss in passing through the faucet at the rate of 10 gallons per minute = 15 lb. The sum of these three losses equals 37½ lb. Therefore there must be 37½ lb. pressure at the main to deliver 10 gallons per minute.

The next problem involved the subject of meter losses in pressure. It was pointed out that small pipes and small meters account for large losses. It was stated that ½-in. pipe showed such heavy losses that its use

in plumbing installations should be discouraged. Larger service pipes and larger meters should be required.

It was shown that the tabulation of meter losses was a difficult matter owing to the fact that no two meters showed the same loss.

Experiments had shown meter losses averaging about as follows:

Size of Meter	Gallons Per Minute	Pounds Loss in Pressure
⅝ in.	10	2 to 7
⅝ in.	30	16 to 65
¾ in.	30	14 to 30
1 in.	30	4 to 7

At the same rate of flow, 30 gallons, it will be seen that as the size of meter increases, the loss in pressure in passing through the meter drops off rapidly.

Problem 2:—A ¾-in. pipe passes through a meter, runs 125 ft. from the main to a faucet. The faucet is 23 ft. above the street main, and must deliver 10 gallons

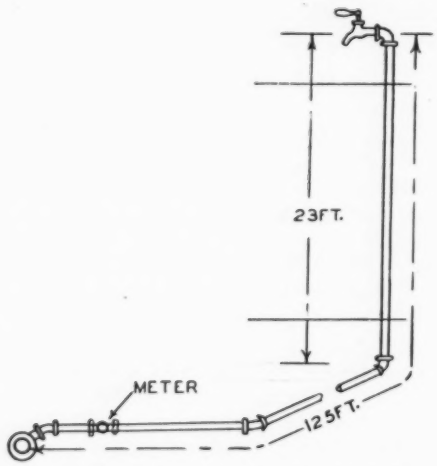


Fig. 7—What pressure will be required at the main in order to deliver 10 gals. per minute at the faucet?

per minute. What pressure will be required at the main to obtain this rate of discharge? See Fig. 7.

The loss due to friction in 125 ft. of pipe will be $16.5 \times 1.25 = 20.6$ lb. This result is obtained from Fig. 1. Loss due to height is $23 \div 2.3 = 10$ lb. Pressure loss in passing through faucet = 15 lb., as obtained from Fig. 4. The loss at the meter is arbitrarily taken as 3 lb. The total losses amount to 48.6 lb. Therefore 48.6 lb. pressure will be required at the street main.

Problem 3:—With a flow of 30 gallons per minute required at a flush valve, which is 90 ft. from the street main, the elevation of the valve being 34½ ft. above the main, what must be the pressure at the main, the pipe size being 1 in.? See Fig. 8.

The pipe loss, taken from Fig. 1, would be $38.7 \times .9 = 35$ lb. The loss through a 1-in. meter (estimated) would be 6 lb. The loss due to height would be $34.5 \div 2.3 = 15$ lb. The loss of pressure in passing through the valve (estimated) is 5 lb. The total losses will be 61 lb., which is the amount of pressure required at the street main.

To show how necessary to the proper action of the flush valve the correct size of pipe is, the same problem as No. 3 was worked out with the service pipe of 30 ft. 1 in., and the pipe inside the house ¾ in.

The losses in this installation would be as follows:

Loss on service pipe	11.6 lb.
Loss on ¾-in. pipe in house	72 lb.
Loss at meter	6 lb.
Loss due to height	15 lb.
Loss at valve	5 lb.
Total loss	109.6 lb.

With a ¾-in. pipe inside the house then, 109.6 lb.

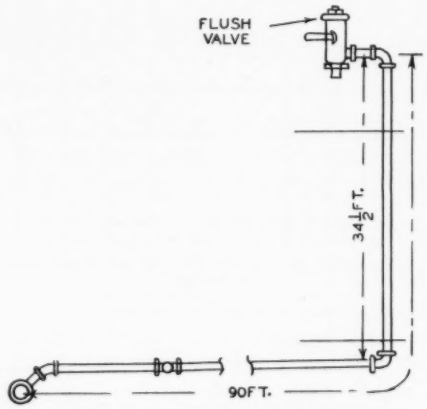


Fig. 8—Sketch of another practical problem involving the operation of a flush valve

pressure wuld be required at the flush valve to discharge 30 gallons per minute.

In these calculations no account has been taken of the loss in pressure due to the use of fittings. Unless these are somewhat numerous, the loss may sometimes be overlooked or estimated.

In his lecture at the first M. I. T. plumbing conference in 1927, which was along similar lines to his most recent lecture, Professor Russell made this statement: "A rough rule for calculating the loss in pressure due to an elbow in small pipes, is from ¼ to ½ lb., which points to the desirability of using as few fittings as possible. The reaming of pipe ends is advisable for the same reason."

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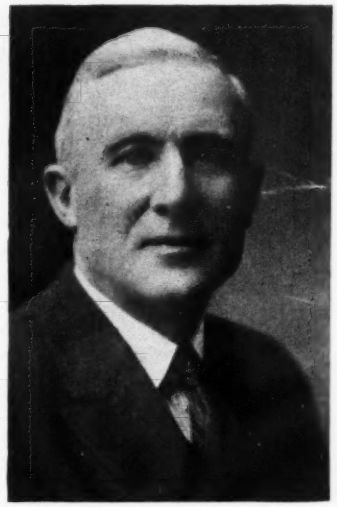
Supplementary Heating

If there is any source of heat other than that to be supplied by the heating system, an estimate of the amount should be made and subtracted from the requirement total. When such allowance is made, consideration must be given as to the continuity and permanence of such supplementary source. The following table gives a tabulation of determined values that are available. Other sources may be estimated conservatively in determining the net heating needs for any room.

Heat Given Up from Auxiliary Sources

Object	Btu. emitted per Hour
Electric lamps	Total watts x 3.412
Average person sitting at rest	350
Average person working	450
Cottage cook stove	20,000 to 35,000
Range boilers	2,000 to 4,000

President Donoghue Notifies Secretaries of New Gas Policy



P. W. Donoghue

P. W. DONOGHUE, president of the National Association of Master Plumbers, notified secretaries of local associations on July 20 of the new merchandising principles recently adopted by the American Gas Association. He pointed out that the adoption of these principles will "eliminate many misunderstandings and difficulties now existing between the gas companies and the master plumbers." He also told these secretaries what course to follow in case members feel they have been unjustly treated by gas companies.

Readers of DOMESTIC ENGINEERING will recall the complete report of this significant change in gas company policies, first outlined at the Milwaukee convention of the National Association of Master Plumbers and given in full in our issue of July 11.

President Donoghue's letter follows:

My dear Secretary:

The following is a copy of the Merchandising Principles of the American Gas Association suggested for the guidance of their member companies as a basis for promoting co-operative trade relations.

"IT IS RECOMMENDED THAT GAS COMPANIES TAKE THE INITIATIVE IN BRINGING ABOUT CONFERENCES WITH DEALERS IN THEIR LOCALITIES, TO THE END THAT THE FOLLOWING OR OTHER MUTUALLY ACCEPTABLE PRINCIPLES MAY BE AGREED UPON, ADOPTED AND PUT INTO USE FOR THE PURPOSE OF STIMULATING THE SALE OF SUITABLE GAS APPLIANCES AND PROMOTING THE USE OF GAS SERVICE IN A WAY THAT WILL BE MUTUALLY ADVANTAGEOUS TO ALL PARTICIPANTS.

"1—All gas appliances offered for sale by all co-operating agencies shall bear the seal of approval of the American Gas Association Testing Laboratory.

"2—No appliance or merchandise not directly related to the use of gas shall be sold by gas utilities.

"3—In all merchandising activities, the re-sale mark up of all gas appliances that have received reasonable customer acceptance shall be consistent with present day merchandising practices. There shall be no premium given with nor trade-in allowances made in connection with the sales of any such appliances unless all co-operating agencies are in a position to participate.

"4—The presenting to the public of those gas appliances not having received reasonable customer acceptance shall be considered as promotional activities and not as merchandising activities.

"5—Co-ordinated advertising of approved appliances should be developed by gas utility companies and local dealers, and the gas company should give all reasonable assistance possible to the dealer in advertising, displays and sales assistance.

"6—The deferred payment feature of merchandising activities shall be on an economically sound basis."

(Adopted by Executive Board of American Gas Association May 2, 1931.)

This set of principles has been formulated by the American Gas Association as the result of a conference between a Committee appointed by President George H. Drake of the National Association of Master Plumbers, consisting of Mr. Jere L. Murphy, Chairman; Vice-President P. W. Donoghue; and National Director M. J. Feeney; and a Committee representing the American Gas Association.

We believe the adoption of these principles by the gas companies, promoting "Co-operative trade relations" will, without doubt, eliminate many of the misunderstandings and difficulties now existing between the gas companies and the Master Plumbers in various sections of the United States.

A Trade and Dealers Co-operative Committee, representing the American Gas Association, has been appointed with Mr. Hugh Cuthrell as Chairman and he has offered his services and the services of this Committee to co-operate with any State or Local organization desiring to put these principles into force. The American Gas Association desires, in every possible way, to co-operate with the members of our industry as they believe the American public and the consumers of gas would be greatly benefited and better served by such co-operation.

If any members of the National Association of Master Plumbers believe they have been unjustly treated by their local gas company and will communicate with the National Office, stating specifically just what sections of these merchandising principles have been violated, their complaints in detail will be presented to the American Gas Association in order that prompt assistance may be given by them in obtaining the proper co-operation from their local company.

There is no question that in some sections of the country proper co-operation has not existed between the gas companies and the Master Plumbers. These principles, as laid down by the American Gas Association, have been forwarded to the members of their Association and we understand in many instances they have already been effective and have created a better mutual understanding. (Signed) P. W. Donoghue, President.

Editorials

The Institute Closes Its Doors

THE July bulletin of the Plumbing and Heating Institute was headed: "The Institute Closes." It is not our purpose to voice lamentations over this fact. It may very well be that the Institute had served its purpose. If it was found impossible to secure immediately all of the hoped for advantages, the fault lay with the industry, not with the Institute. One may well quote the famous lines which Shakespeare put into the mouth of Caesar: "The fault, dear Brutus, lies not with the stars, but with us, that we are men."

But equally, "that we are men" and presumed to be reasoning creatures, the future welfare of the industry lies with us. This entire building industry has in it some very sore spots; and unless it is to descend entirely to the level of the prizefight industry, some elements in it must be willing to back the principles embodied in the trade practice rules as approved by the Federal Trade Commission.

It is true that the commission has had to abandon some of the ground it attempted to cover. But even if it were true that no help whatever could be hoped from that direction, it is quite likely that the brief period during which the Institute was in existence has caused the industry to look at itself critically. It has looked closely perhaps for the first time at some of the practices which the rules were intended to correct; and while those practices have usually been considered the other fellow's, no doubt there has been a suspicion planted that the other fellow wasn't the only one.

This fact, coupled with others—such as that the President has thought it necessary to set up a commission to study certain financing practices in the building of homes, and that the average person who might be thinking of a home wonders just how he's going to come out of it—may awaken the whole building industry, as it should awaken our section of it, to the fact that harmful trade practices sooner or later shake consumer confidence.

Although the Institute is closed, the rules are in existence. To whom the industry is to look for leadership in their observance we do not know. The last issue of the bulletin suggested that the existing associations might take on the job. But, whoever takes on the job, fundamentally the observance of the rules lies with the individuals responsible for the management of the various units. Their consciences, as a modern tag puts it, must be their guides. And until they have been aroused, commissions, institutes, associations and policemen must fail. But once it is realized that a good conscience and material welfare are not incompatible companions, the rules will be observed.

Home Consciousness

REPORTS from the East would indicate that there is more interest being shown in home ownership there. Those who have up to now paid high for the "atmosphere" of fashionable location seem to be seeking more comforts and less prestige. It is quite likely that this is the beginning of a reaction against the attempt to live in packing cases called apartments in favor of sunshine, space and air.

And it has been observed before that waves of sentiment like this—affecting business volume—have rolled over the country with the sun. A revival of interest in home ownership just now would be most gratefully received and anything done to promote the old slogan, "Own Your Home," will help speed up business recovery.

A Pressing Obligation

WITH the adoption of the six principles advanced by the American Gas Association at Milwaukee, there is an immediate duty on the shoulders of every official of a local association where there is not a satisfactory set-up with the local gas company. The gas association has promised some very definite things—and only test cases where conditions are unsatisfactory will serve to prove whether or not the immense market in gas appliances is once again to be open to the master plumber on fair competitive conditions. Hundreds of committees should now be at work all over the country and reporting results—or lack of them—to the national office.

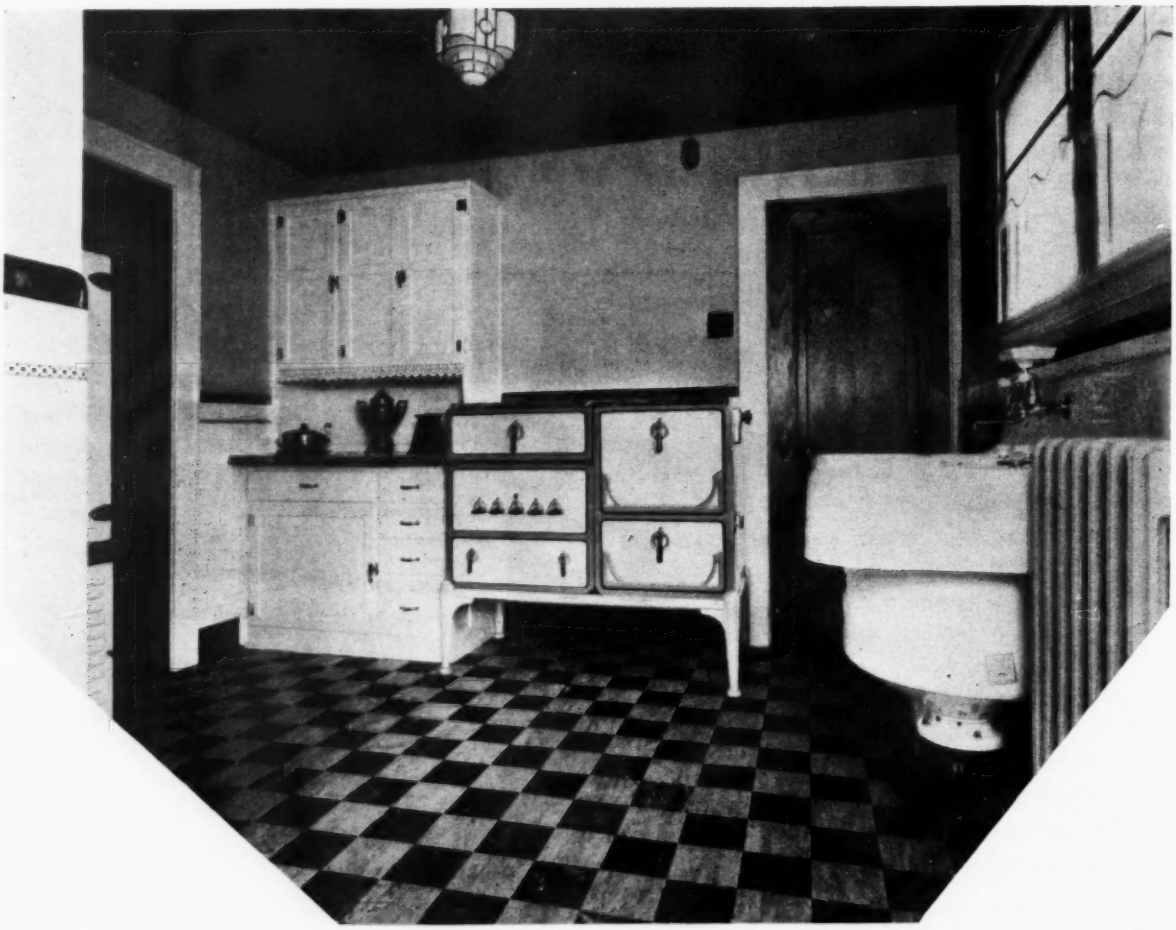
Every association officer has certain general obligations resting upon him—but not often is it as clear-cut as this one. All he has to do is see his local utility, ask what it plans to do about the six principles and report. If his local utility is not abiding by the six principles, the national office will take it up with the gas people.

PLUMBING & HEATING MERCHANDISING

Believe it or not, this lady is washing dishes — as are many others with the help of

Electric Dishwashers

And in the pages of this section are set forth the sales opportunities, merchandising methods of plumbing contractors, and the expressions of builders and owners of this very convenient household appliance



A Bloomfield, N. J., development gives Fred Richenburg an opportunity to make installations like this one

Where and How

To Sell Dishwashing Sinks

Among the contractors who have not permitted present conditions to unduly throw their volume out of line are those who have taken an interest in specialty sales. Among the products in plumbing which qualify, and offer profitable opportunities, is the dishwashing sink—and here is some information about how masters are selling them

THE electric dishwasher sink is coming into its own fast and master plumbers are taking advantage of the increasing demand for this automatic household unit that takes one of the most unpleasant of all tasks out of the hands of the housewife and relegates it to a machine. Ask any woman what household duty she abhors most; she will answer "Washing dishes," and it is this normal antagonism toward slopping in dish-water that is building sales volume for the electric dishwasher. Furthermore, this is one unit that offers no mail-order competition, at least not up to the present time, which reduces sales resistance considerably.

According to estimates of electrical associations and manufacturers there were approximately 12,000 electric dishwashers sold in 1929 and to date there are about 100,000 in use, but these figures include restaurants, hotels, clubs, etc. It is reported that so far this year the home-owners are

buying this product in greater quantities than in any three previous years and progressive masters everywhere are beginning to get their share of electric dishwasher profits. One plumbing supply house in Passaic, New Jersey, reports the sale of twelve dishwashers during one month to plumbers who sold them to housekeepers.

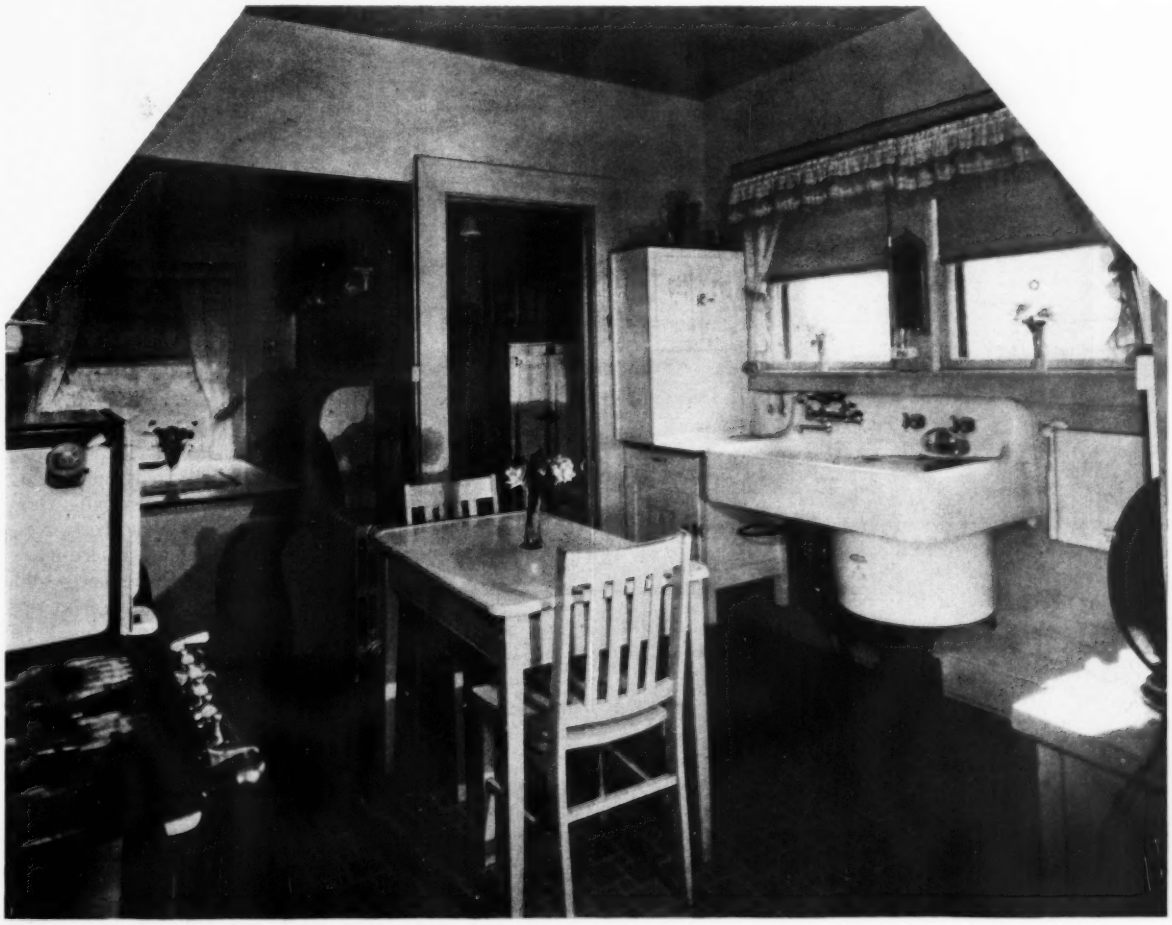
A Master Plumber Speaks

F. N. Booth, master plumber, Nutley, N. J., has this to say about his experience in selling this machine: "I find that the housewife is particularly susceptible to the suggestion to buy an electric dishwasher and the profits accruing from these installations are so substantial that it pays the plumber to put some selling effort behind them, either door-to-door canvassing, direct-mail, newspaper advertising or journeyman salesmanship. In some houses it is necessary to switch around pipes and traps in order to do a good job and the master should see that his installation fee is sufficient to do the work right, because no matter how good the dishwasher, it will be more or less of an eye-sore if the plumber makes a shoemaker's job of the installation. Our average installation fee is $30, and it takes a journeyman and helper about half a day to set the fixture.

"There is also the question of trading in the old sink to be considered. It will come up from time to time. We make an allowance only when the old sink is in excellent condition. In one case we allowed $30 on the sink we pulled out and sold it the next week at a profit which made this dishwasher still more profitable. In cases where we have pulled out old sinks that have been in use for some time we have made no allowance and the purchasers were satisfied. Then again, the master plumber who sells a dishwasher should suggest a gas heater if there is none in the home and usually he will close an additional sale for this product because a dishwasher works at maximum efficiency with an appliance that keeps the water always at the boiling point. Such companionate sales boost electric dishwasher profits. We have had no trouble on the servicing end either, which means much to the plumber who must pay high wages for labor. The modern dishwasher is simple in construction and there is little to get out of order."

Sales Arguments

The big talking points used by Booth and other master plumbers in closing dishwasher sales can be summed up as follows: Aside from the dislike of the average housewife to wrestle with a dish rag, there is no other household task that requires more time than that of washing dishes. In most homes the dishes are washed three times daily, or 1,095 times yearly. When a master plumber mentions this to a dishwasher prospect, it goes over big, and when he further explains that it takes only about five minutes for the machine to



F. N. Booth, of Nutley, N. J., made this installation in one of the homes in the community he serves

wash a sink full of dishes, while the housewife can read a paper or attend to her other household duties, it increases the desire to own one. It is only necessary to clean off leftover morsels before putting the dishes into the dishwasher racks, then put down the lid, turn on the motor to wash and rinse.

The dishes dry themselves. Next to the elimination of drudgery angle, Mr. Booth says that another strong selling point is sanitation. No hand can stand water that is hot enough to kill bacteria and there is nothing around the house laden with more germs than a dish rag. The electric dishwasher utilizes water around 140 degrees Fahrenheit, which means that the dishes are sterilized when they come out of the racks. It is claimed by manufacturers of these products that physicians are the largest purchasers, which speaks well for the sanitation feature. In a home where there are babies, the master plumber should talk the healthful advantages of the dishwasher, says Mr. Booth. A mother who insists on pasteurized milk for her baby is not consistent when she feeds it the milk in a cup washed with a dish rag full of bacteria. After making tests, medical authorities assert that machine-washed dishes contain about 1/90 of the bacterial count on hand-washed dishes, thus the electric dishwasher guards the family health.

Cleanliness a Strong Point

Cleanliness is another factor. The dishwasher produces dishes cleaner than the hand can make them, and although some housewives may doubt this, a demonstration will make them change their minds. Then there is the question of shapely hands. Every modern woman wants fingers and hands well groomed and white. The home manager who washes dishes thrice daily in greasy, soapy water cannot keep her hands as beautiful as she would like to have them. The plumber who mentions this to a woman will score another point in favor of the sale. The breakage feature is important and the plumber should stress it. Some women are always breaking or chipping dishes and replacements run into money, particularly when the china and glassware are expensive. Mrs. J. M. Ali, 136 Sanford Avenue, Flushing, New York, says this about her dishwasher: "It causes no breakages, which is a point of perfection that I myself have never been able to attain." This shows how important the elimination of breakage can be in a sales talk on dishwashers.

It costs little to run the electric dishwasher, only about three cents an hour, therefore upkeep is not a factor. Housewives who have been interviewed regarding their electric dishwashers say that they notice no marked increase in electric bills. During a survey made in New York, New Jersey and Long Island, where many electric dishwashers have been sold, not one woman was found who was dissatisfied with her purchase. Most of them said that they would rather part with every other automatic appliance in the home than give up the dishwasher. Pictures of some of these installations are shown here. These pictures were made in homes of actual purchasers.

In some cases the men of the family were enthusiastic about the dishwasher, because they had frequently been obliged to help out with dishes,

Another installation made by F. N. Booth of Nutley, N. J., in a home in his community. This lady counts it first among the appliances of her home

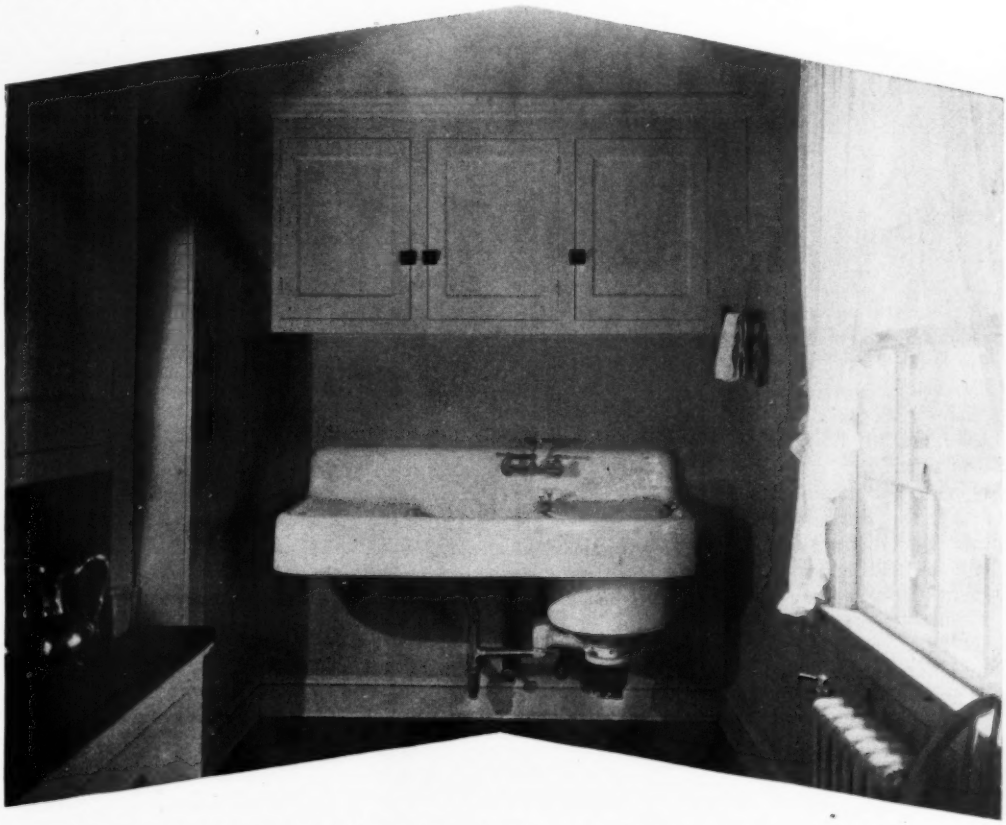
particularly after guests had been entertained. The dishwasher makes entertaining easier because the dishes can be piled in the machine after the festivities and washed the next morning. Where the man of the house assists with the dishwashing, or where the housewife does much entertaining, there is plenty of opportunity to sell a dishwasher and the plumber should not overlook these talking points in his sales speech.

The News Spreads

The dishwasher builds word-of-mouth advertising for the plumber. Install one and the neighbors all hear about it because it is something ultra-modern. Mrs. E. R. Feland, Nutley, N. J., who bought a dishwasher from Mr. Booth, the plumber of that town, says, "After examining the dishes washed by the machine, my neighbors and guests all express surprise at the fact that dishes can be washed with so little effort and that they are much cleaner and brighter than when washed and dried with a cloth, especially the glassware. We are indeed boosters for the electric dishwasher." If a plumber gets a few of such customers boosting the dishwasher he sells, he can make sales multiply. "Whenever you sell one," advised Mr. Booth, "be sure to keep in touch with the purchaser for new leads and ask her to send you to some of her friends or allow her friends to come to her house to witness a demonstration of the dishwasher while you put over your sales talk. This is easier than demonstrating a unit on the sales floor, although every plumber should have an electric dishwasher on hand to show prospects; but he may not always have soiled dishes and a woman wants to see how the machine handles grease and dirt before she is convinced that it will be a satisfactory substitute for handwashing.

"If you can arrange it, such demonstrations are best made in the homes of previous purchasers. Usually a woman feels proud of her machine and has no hesitancy of exhibiting it before friends and neighbors. In other words, 'Use the user' when you sell an electric dishwasher and you will make one sale give birth to many more. Everybody has a vacuum cleaner, washing machine and toilet in the home, therefore few home managers mention these ordinary household requisites, but an electric dishwasher, that's something to talk about and women, you know, will talk. The plumber should capitalize pride of possession and 'Use the user' in his selling campaign on dishwashers."

Two of Booth's dishwasher installations are shown herewith, one in the home of Mrs. Werner P. Metz, and the other shows the kitchen of Mrs. A. L. Sherman, both of Nutley, N. J. Mrs. Metz said, "We have six in the family and I consider the electric dishwasher the best purchase I ever made. The cost of upkeep is negligible and the amount of work it saves is tremendous. I have had some friends look it over and if expressions of approval mean anything, they are all good prospects for the machine." Mrs. Sherman said, "We have two in the family and I find the dishwasher a great convenience. After cleaning off the scraps I pile the dishes in the washer for the three meals and wash them all at once. In the past I used to be interrupted with phone calls or



This installation was made in a luxurious Long Island home, the sink being placed in an alcove just off the kitchen proper

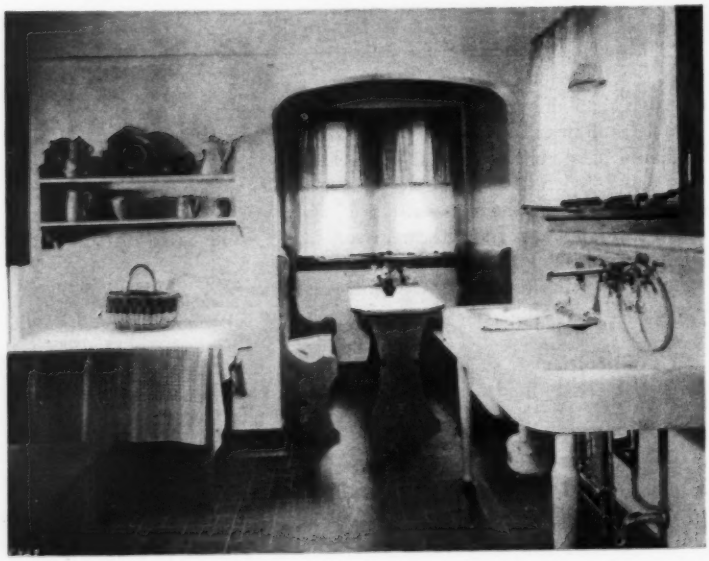
Note how kitchen cabinets have been especially made to contain the dish-washing sink, allowing easy access to working parts

doorbell rings every minute while washing dishes and this held me back considerably. Now I can answer the phone or doorbell or sweep the floor while the dishwasher does the work I formerly did, and my housework is finished in no time."

This lady employs a part-time maid and says that it was difficult to keep a girl until she got a dishwasher. Now her present household helper actually looks for dishes to wash in order to see the machine work. She also brought in three servants from neighboring homes to see the dishwasher operate and one of these neighbors is now considering the purchase of a machine in order to keep her own maid satisfied. Thus the electric dishwasher is helping solve the servant problem, and the servant problem is creating a demand for the electric dishwasher, which all means money in the plumber's pocket if he handles this line energetically.

Builders Are Interested

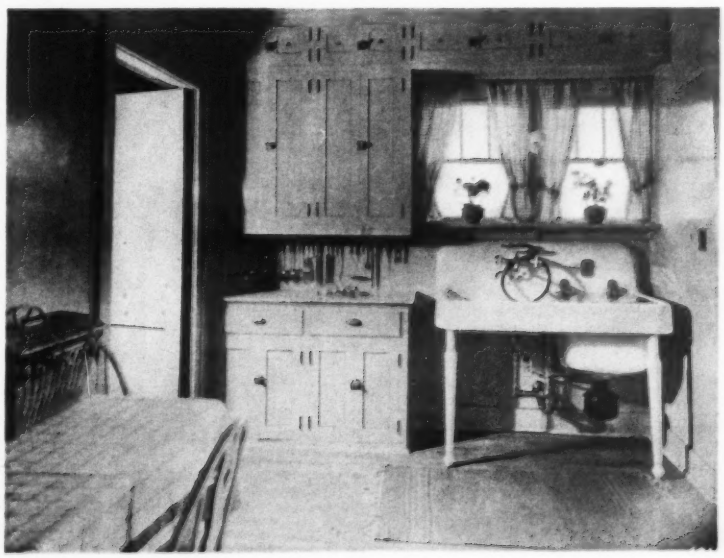
However, folks who can afford maids are not the only ones who are buying dishwashers. Builders in New York, New Jersey and Long Island are installing them in hundreds of



A charming kitchen, with breakfast nook, conveniently served by the dish-washing sink

Dishes and glassware are sterilized in the dishwashing sink because the water may be used at higher temperature than when the housewife's hands must be in it

new homes selling from $8,000 upward. Fred Richenburg, sanitary engineer, Bloomfield, N. J., made about sixty dishwasher installations in new homes in his section. One of these photographs shows a view of the Park View Development, Bloomfield, N. J., which Richenburg equipped with these machines. These homes run from $10,000 to $12,000 and this craftsman says, "The houses equipped with electric dishwashers sell fast and the builders in this section are beginning to include them in all new homes. This means that housewives in the older houses will be demanding them, too. I have made a great many dishwasher installations for the Walter Johnson, Jr., Homes, Inc., Bloomfield, N. J., and Mr. Johnson says that he has found that the electric dishwasher makes a stronger impression on a prospect than ten other features, and that the houses he builds from now on will contain these units. He says that they speed up sales and pay for their installations in the amount of good-will they create. Mr. Johnson has also found that the installation of an electric dishwasher sink which averages around $275 installed in these homes, will bring back



Tucked away neatly in a corner, with convenient cabinets built around it, this dishwashing sink completes the modern kitchen

the owner at least double its value in the selling price. We have had practically no service calls on the installations and if anything goes wrong, it is usually the fault of the housewife who throws something in the machine that should not go there, which damages the whirling propeller."

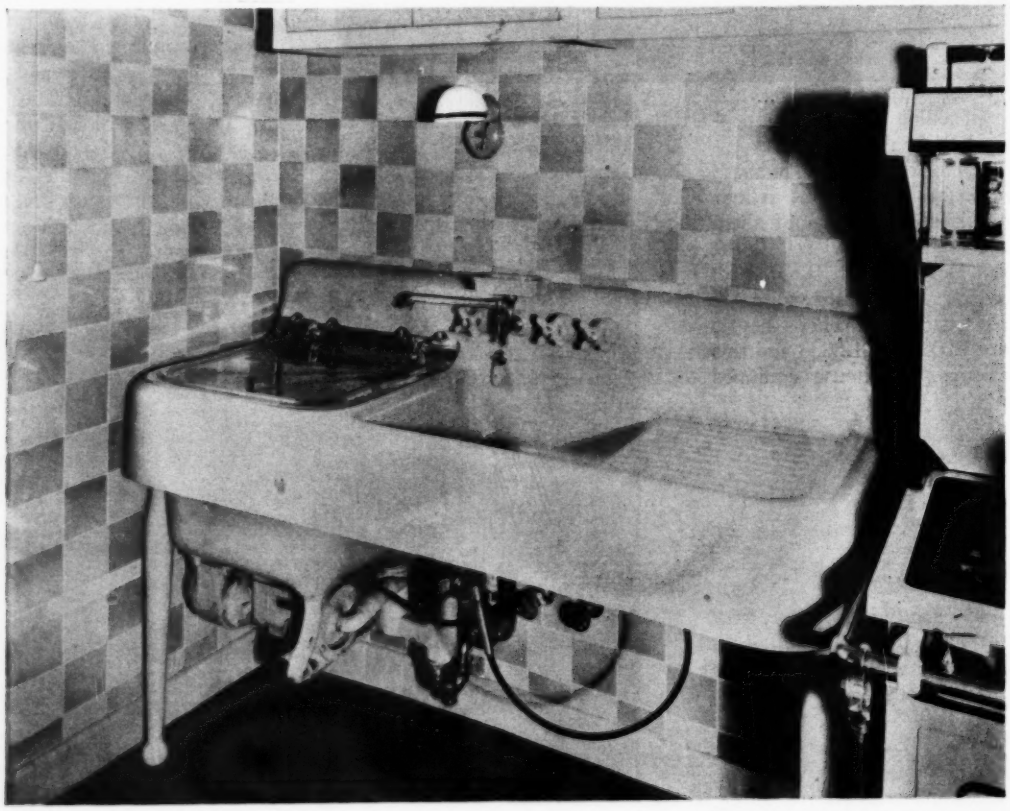
In the Long Island section of New York there are electric dishwasher sinks in all types of houses—private dwellings, belonging to people of moderate means as well as millionaires, apartment houses, old homes and new houses. Frank Droesch, prominent builder of Richmond Hill, N. Y., says, "We built fifty-three houses at a higher price than any of the other builders around here and sold out before competition merely because the company had installed electric dishwashers in these dwellings." An architect says, "The first building under my supervision was for forty-three apartments and the rental manager informed me that thirty-eight were rented the month of completion and that they now have a waiting list for their 2, 4 and 5 room apartments." This architect attributes this rapid rental to the inclusion of the electric dishwasher sink as part of the household equipment. Another builder says, "We had the building over half occupied within three weeks after we opened, and now have 90 per cent of the housekeeping apartments occupied and using the dishwasher." These comments are typical of what builders and architects in New Jersey, New York and Long Island think of the electric dishwasher as an aid to home sales and rentals.

A Big Prospective Market

The master plumber in the more populated centers is not the only one who can profit on electric dishwasher installations. It is estimated that there are about 450,000 electrified farms on power lines in this country and the farmer's wife is demanding all the household conveniences that the home manager in the city considers necessary. The master plumber in the rural district should therefore get behind this profitable line, too.

In short, the electric dishwasher is one of the best profit-makers the master plumber is being offered today. It has tremendous appeal for the housewife and the man of the house, too. It is a labor-saver in large and small families. It is manufactured at prices that fit every pocketbook and if a prospect does not own the home, the master plumber can offer a portable machine that may be moved from house to house as readily as a dining-room table. The electric dishwasher will sell on the farm or in the city, and builders will be eager to install it because they can increase rentals and selling prices of homes and more than double their investments in these installations. Besides, it reduces overhead by speeding up sales and rentals. Add to these fundamental factors the fact that there is no chain store or mail-order competition in this field as yet and you have an ideal merchandising opportunity.

The master plumber who banishes the dish rag in his community will clean up some real money.



"What about pots and pans?" is a question almost every housewife asks the master plumber who is trying to sell her an electric dishwasher. The dishwasher will wash them, too. In this installation there is a flexible shaft and revolving brush at the bottom of the machine to enable the housewife to scrape off burned or baked food particles. The dishwashing sink is the modern helper in the modern kitchen

Doubly Sealed . . . for all time

ONCE a sleeve nut is tightened on a Hays Double Seal Copper Connection the joint remains leakproof for all time. It can't jar or work loose—nor can any of the elements affect it. It withstands forever the ravages of time. It is the strongest and tightest connection known to copper plumbing.

The plumber appreciates the lifetime protection that the Hays Double Seal Connection gives to his copper work. A quick O. K. by the inspector—a satisfied customer and the personal satisfaction of having done a job the best way are results of using the Hays Copper Method.

These statements are substantiated by a series of tests made at the instigation of a city plumbing inspector. Neither torsion, deflection, vibration nor high pressure could unseat the Hays joint. It is truly a permanent connection. Write for a descriptive booklet.

HAYS MANUFACTURING CO., ERIE, PA.

HAYS

DOUBLE SEAL CONNECTIONS

THE DIFFERENCE BETWEEN AN OLD HOUSE AND A NEW ONE IS PLUMBING!

A Complete Remodeling Sales Kit

WHAT'S needed to make remodeling sales easy? First of all, you've got to sell the remodeling idea. That goes without saying. Remodeling is a big movement. Next to building a new home, remodeling an old one is about the biggest job a home or building owner undertakes. In plumbing and heating, as in no other division of home necessities, strides toward perfection have been made.

"The difference between an old house and a new one is plumbing" is an expression that in a few weeks has gone into every nook and corner of the country. "Modern heating makes modern homes," another slogan, is fast catching up to the plumbing thought. These two slogans express in a few words the whole idea of remodeling.

They have been printed upon attractive window posters and distributed by the thousands to contractors, jobbers and manufacturers. They are to be seen not only in windows and show rooms everywhere, but on trucks, automobiles, on letterheads and envelopes and in newspaper and direct mail advertising.

They are helping to sell the remodeling idea to home and building owners. The plumbing and heating industry has seized upon their timeliness and is using them to the fullest advantage. Every day hundreds of home owners see these slogans, read them and think about them.

You should be cashing in on them, featuring them in your windows, your store or shop, your trucks, automobiles, advertising, etc. They are a part of DOMESTIC ENGINEERING's Remodeling Sales Kit.

With them you can awaken your customers to their plumbing and heating needs. While these posters are at work, you should have on hand a supply of DOMESTIC ENGINEERING's Guides to Remodeling Sales. These are brief but complete directions on what you must do to get a slice of the remodeling business. Seven simple steps are set forth in this guide. It tells you how to find and develop prospects; it dwells upon the selection of products, upon organization, advertising, inquiries, follow-up and closing.

As a part of the Guide, printed on the same form, are The Plumbing and Heating Charts, simplified pictures of the entire plumbing and heating systems in any building. These charts list, in order, the various equipment and repair jobs that might occur in plumbing and heating. With these charts you can go to the home or building owner and show him a complete picture, on paper, of his plumbing and heating systems.

He can go right through the house with you, working from the chart, and you can show him item for item just what is needed. When you've checked his house, charted it as to its requirements, you can tell in a few moments how much the job is going to cost.

With these charts, the Remodeling Sales Kit is complete. There are various sizes of kits ready and waiting for you, and DOMESTIC ENGINEERING has made the price of them so low that you will want to have these aids to sales at once.

For fifty cents, for instance, you can get 10 of the plumbing posters and 10 of the heating posters for your windows, store or shop, truck and automobile and 10 of the Charts and Guides. This price includes postage and enough stickers to put the posters up.

For a dollar you can get 15 of the plumbing posters, 15 of the heating posters and 25 of the Guides and Charts. If you'd like to see just one of each of them before getting a kit, send 10 cents in stamps and we will send you one each of the posters and one of the Charts and Guides.

MODERN HEATING MAKES MODERN HOMES

TRADE PENBERTHY PRODUCTS MARK

A SYMBOL

ITS MEANING TO THE PLUMBING CONTRACTOR

When a plumbing contractor installs an electric sump pump or hydraulic cellar drainer bearing the trade mark reproduced above, it means that—

—he will earn a fair profit

—his profit will not be dissipated in servicing

—installation is simple and can be quickly made

—reliability and operating economy have been proved

—the pump is immune to corrosion—of copper and bronze throughout

—a financially responsible manufacturer stands squarely behind him in assuring satisfaction to his customer

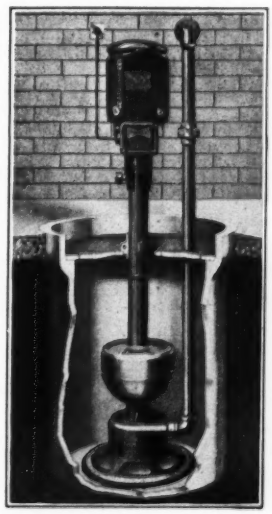
—the manufacturer has the experience, resources and research facilities to build to a purpose, not to a price

—the manufacturer is actively creating the demand by using large space in leading architectural and building publications.

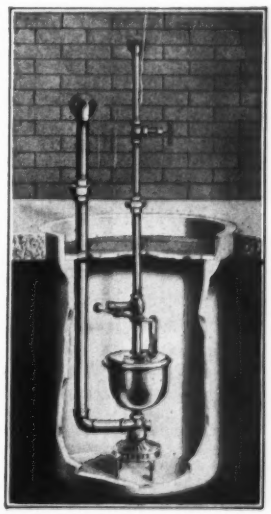
Carried in stock by leading jobbers throughout the country

PENBERTHY INJECTOR COMPANY

Established in 1886 DETROIT Canadian Plant Windsor, Ont.



Penberthy Automatic Electric Sump Pump



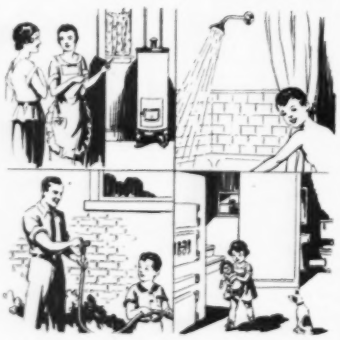
Penberthy Automatic Cellar Drainer (Water Operated)

COPPER AND BRONZE THROUGHOUT

PENBERTHY PUMPS REMOVE SEEPAGE WATER

RETAIL ADVERTISING SERVICE

THERE are a number of conveniences which the plumbing contractor can offer to his customers for summer use—and which should be called to the attention of his customers. The copy on this page goes into some detail on the subject of plumbing conveniences for the summer. The newspaper ads, the sales letter and the publicity item all strike a timely note.



Summer Plumbing Conveniences

THESE are plumbing conveniences you simply can not be without for the summer—a water heater; shower equipment; properly placed sillcocks for lawn and garden; a basement toilet for the children.

Each, in its own way, will contribute to convenient summer living—eliminating unnecessary work, making summer tasks easier and encouraging right habits in children.

Other products that will meet your needs conveniently are on display in our store. We cordially invite you to make a visit of inspection.

(In this space Your Name, Etc.)

For one column space

For Summer Convenience

Most of us promise ourselves every summer that we will make things easier—put in an extra sill cock or two so that the job of watering lawns and gardens will be more efficiently done; install a shower for comfortable use after a hot day at the office or sports; install a modern water heater so that the discomfort of old-fashioned water heating may go. In any one of these matters—and in others—we can serve you promptly to make the summer months a greater pleasure to you and your family.

(In this space Your Name, Etc.)

A two-column newspaper ad

Dear Madam:

Warm weather always brings the need for more convenient household arrangements.

In particular, plumbing arrangements can often be established so that summer tasks are lighter. Take the matter of heating water--with a modern water heater in the basement you can have all the hot water you want by merely turning the faucet. And it's more economical.

Garden tasks will be lightened greatly if some thought is given to outside hose connections. One is not sufficient. There should be at least two--perhaps three. These, conveniently placed, will save much useless dragging about of lengthy hose.

Shower equipment, and basement toilet facilities, are found of the greatest service in many homes. The shower is an inviting, refreshing help during warm weather; and the basement toilet facilities will encourage the children in right habits and, incidentally, save much tracking up of the home.

We shall be glad to discuss any or all of these arrangements with you--without obligation on your part.

Very truly yours,
HARRY BROWN

A plumbing sales letter

▲

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

▼

LET THE PLUMBER EASE YOUR SUMMER

"There are a lot of people in this community," says Harry Brown, local plumbing contractor, "who are enjoying summer discomforts that might easily be eliminated.

"Let me give you one example. Here is a man who has a great pride in his lawn and garden. He has one sillcock, or outside hose connection. He drags a hundred and twenty-five or fifty foot length of hose all over the landscape. And maybe sometimes he doesn't—it's just too hot, or he's too tired. One more sillcock—at the most two—and he can cut that job in half so far as his own efforts are concerned.

"And then, of course, if he wants genuine ease and comfort, he can have a sprinkler system controlled from his easy chair on the porch."

Hand this publicity item to your newspaper

Sell Something More Than Heat

More rapidly than some of us imagine, the public is getting hold of the idea of automatic heating for the home—and many are thinking in terms of air conditioning. You'll interest these people if you indicate that you are ready to serve them with modern heating.

A two-column newspaper ad

Modern heating is something more than a heating plant

ONCE we were satisfied to crank an automobile—and to build a fire every morning. Then we put a heating plant in the basement and attended it somewhat less often. But now we are demanding release from such drudgery. We want our heat automatically delivered, balanced against the outside temperature. It means greater comfort, and it certainly means greater economy. In addition, we're beginning to think of the condition of the air—not only do we want to heat it—we want to keep it at the proper humidity, and to cool it in summer.

We'd be glad to talk this important matter over with you. Just phone for an appointment.

(In this space Your Name, Etc.)

Refinements in Heating

HEATING is no longer merely a process of feeding coal into a boiler or furnace. It's been refined beyond that. Now we control the temperature of the house automatically whatever the fuel you may be using—we eliminate drudgery and worry. With modern automatic heating in your home, you become independent of your heating plant—free to come and go knowing that the plant will operate in your absence as it does when you are at home. Just phone for an appointment to get the facts—without obligation.

(In this space Your Name, Etc.)

A single column ad

GAIN INDEPENDENCE OF HEATING PLANT

"Perhaps when I say that modern people have gained independence of the heating plant," says Harry Brown, local heating contractor, "I'm putting it backward. It's really the heating plant that has gained independence of modern folks.

"It used to be that when it got a bit colder, you stoked up, opened the drafts, and whooped it up with the fire. The plant got red hot, and pretty soon the house was too warm. Then you cussed the plant and closed the drafts. Now the heating plant doesn't look to you for its cue. It shuts itself off and opens itself up, according to the needs of the house—and it doesn't have to please an unreasonable mortal who can't understand that a self-respecting heating plant has to be treated reasonably."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Madam:

Your memory does not go as far back as mine, of course--but I can remember some great changes, some of which you have observed.

A number of years back we used to build a fire every morning. Then came the "ranges" and the "hot blast" stoves. And then we put furnaces and finally boilers in our basements. When we did these last, we figured that we had just about gone the limit.

Yet within the last few years so many refineements have been added to heating plants that it is necessary for a man who is in the business to keep on the alert.

Of course, in a general way all these refinements are moving in one direction--the production of even, comfortable and absolutely automatic heat in the home. No more chasing down into the basement to take care of the fire. You set your controls as you wish them--and forget all about the heating plant.

Every plant installed a few years back can be improved on now by the addition of some of these remarkable devices. They aren't expensive--in fact, they actually represent an investment on which you collect in the way of economies in fuel and greater comfort in your home.

I'd like very much to have the opportunity to check over your heating plant and to make such recommendations as seem necessary. Won't you phone me?

Very truly yours,
HARRY BROWN

A heating sales letter

NEO-CLASSIC

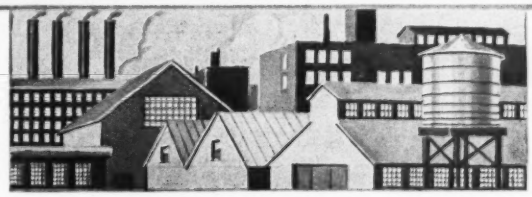
A new form for plumbing fixtures modeled by a designer of international standing and faithfully reproduced by "Standard". The Neo-Classic form is classic in its simplicity. For that very reason it can be carried out equally well in the design of the bath, lavatory and water closet; in fittings for these fixtures; in towel bar and lighting fixtures. This makes possible an ensemble of perfect harmony in design as well as color. The Neo-Classic bath models are available in regular enamel and "Standard" Acid-Resisting Enamel. The Neo-Classic lavatory and water closet models are available in vitreous china. A copy of the book "Standard" Plumbing Fixtures for the Home," which describes the Neo-Classic design, will be mailed on request.

"Standard"
PLUMBING FIXTURES

Standard Sanitary Mfg. Co. 106 SIXTH STREET, PITTSBURGH
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN



Automatic Burner Corp. and Kleen Heat., Inc., Affiliate

The Winslow Boiler & Engineering Co. of Chicago has been acquired by Kleen Heet, Inc., a new corporation, according to an announcement by J. H. Hirsch, president of the Automatic Burner Corp., of Chicago, who also assumes the presidency of Kleen Heet, Inc. Mr. Hirsch states that the entire personnel, factory, distribution and service facilities of the Winslow organization will be kept intact.

◆

Walker Supply Co., of Atlanta, Moves to New Quarters

The Walker Supply Co., Atlanta, Ga., wholesalers of plumbing and heating supplies, has moved from 60 Spring street, S. E. to its new quarters at Washington street viaduct and Gilmer street, SE., Atlanta.

American Radiator Co. Acquires American Gas Products Corp.

American Radiator & Standard Sanitary Corp., through its radiator and boiler subsidiary, American Radiator Co., has acquired all the capital stock of American Gas Products Corp. In addition, its subsidiary, the Campbell Metal Window Corp., has effected an affiliation with the Maxim Silencer Co., of Hartford, Conn., to manufacture and distribute a room silencer device.

The acquisition of American Gas Products Corp. represents a further step in the American Radiator Co.'s program involving the manufacture and sale of gas-fired equipment.

The affiliation of Campbell Metal Window Corp. brings together two organizations who are large manufacturers in their respective fields. This combination unites the patents and experience in the acoustic field of the Maxim company with the window patents and man-

The new showroom of W. A. Case & Son Mfg. Co., Buffalo, N. Y., which was opened recently at Binghamton, N. Y.

ufacturing facilities of the Campbell company. This merger will not affect the status of the Maxim company, as it will continue to manufacture industrial silencers and the like at the Hartford plant. The Campbell company is enlarging its present plant at Baltimore.

◆

Moves Sales Department to New York City

The Hoffman Specialty Co. has moved its general sales department from Waterbury, Conn., to the Chrysler Bldg., New York City. The department will be under the direction of C. V. Haynes, vice president and general sales manager, C. W. Stewart, assistant general sales manager, and N. P. Fenner.

◆

James D. Erskine Organizes New Radiator Company

James D. Erskine, an active leader for many years in the heating industry, has organized the Erskine Copper Radiator Corp. with general offices at No. 1 E. 42nd Street, New York, N. Y. He is president and general manager of the new company. The Erskine Copper Radiator Corp. will enter the field of light weight, non-ferrous, concealed radiation although the manufacture and sale of allied lines is contemplated. The new radiator will be manufactured and shipped by the factory division of the Chase Brass & Copper Co., Waterbury, Conn.

James D. Erskine

◆

Appoints New Sales Representatives

The Moeller Instrument Co., Brooklyn, N. Y., recently announced the appointment of E. C. Shriner, 1710 Potomac avenue, South Hills, Pittsburgh, Pa., as its sales representative in the Pittsburgh territory. The company has also announced the appointment of Paper Mill Equipment Co., Northwestern Bank building, Portland, Ore., as sales representative in the Oregon territory.

◆

To Handle Bishop & Babcock Sales

The Bishop & Babcock Sales Co., Cleveland, Ohio, has appointed the following representatives: F. E. Walker will handle fans, air washers, and unit heaters in New York and surrounding territory for the company. Anthony W. Smith will cover the Northern New Jersey district.

The Akron, Canton, and northeastern Ohio territory will be handled by John C. Rhodes, 1203 Thirteenth street, N. W., Canton. The northwestern Ohio territory including Toledo, Sandusky and other points in that vicinity, will be covered by T. R. Reardon, 4158 Mayfield drive, Toledo.

The U. S. Supply Co., Kansas City, Mo., with sales offices in Omaha and Lincoln, Nebr., Wichita, Kans., Oklahoma City, Okla., and Amarillo, Tex., will handle the company's line in that section.

Kewanee Boiler Corp. Moves Detroit Office

Kewanee Boiler Corp., Kewanee, Ill., has moved its office in Detroit, Mich., to 1344 Broadway. Ben H. Schulze is manager of the Detroit office.

◆

Reorganizes Fowler & Wolfe

The Fowler & Wolfe Manufacturing Co., manufacturers of cast iron radiators, Norristown, Pa., has been reorganized. This announcement is made by A. E. Geddes, president, who was formerly vice president of the American Radiator Co. and a member of its operating committee in charge of manufacture. Associated with Mr. Geddes is Basil N. Greenlau, vice president of the Fowler & Wolfe company and formerly manager of the Bayonne, N. J., plant of the American Radiator Co.

◆

Will Represent Penn Electric Switch Co.

The Penn Electric Switch Distributing Co., 422 Sidway building, Buffalo, N. Y., has been appointed exclusive distributor in that territory for the line of automatic controls manufactured by the Penn Electric Switch Co., of Des Moines, Ia.

◆

B. F. Sturtevant Co. Makes Personnel Changes

The B. F. Sturtevant Co., of Hyde Park, Boston, Mass., has announced the following changes in personnel:

Walter L. Hunken has been appointed manager of the Greensboro, N. C., office. Philip Cohen has been appointed acting manager of the Cleveland office. E. A. Engdahl has been appointed manager of the Seattle office.

◆

Selects New Sales Agents

U. S. Hame Co., of Buffalo, N. Y., has announced the appointment of the following manufacturers' agents to represent it in connection with the marketing of its line of wrenches and hammers:

R. H. Blackall, 1 East 42nd street, New York, N. Y.; W. E. Burger, 7748 S. Seeley street, Chicago; Geo. O. Charlton, 15 Brunswick boulevard, Buffalo, N. Y.; N. B. Ford, 86 Ocean street, Dorchester, Mass.; Wm. P. Horn Co., main office, 58 Federal street, San Francisco, Calif.—branch offices, Wilcox building, Los Angeles, Calif., and 302 Smith Annex, Seattle, Wash.

Malcolm Isbister, 5225 Linsdale avenue, Detroit, Mich.; J. Edwin Newsome, 130 Queens drive, Weston, Ont., Can.; Peterson Brothers, 104 Walker street, New York, N. Y.; Urquhart Service, Inc., 509 17th street, Denver, Colo.

◆

Chicago Pump Co. Appoints New Representatives

The Chicago Pump Co., Chicago, Ill., has announced the appointment of the following representatives:

Edwin J. Richard, 528 Chamber of Commerce building, Cincinnati, Ohio, will handle the company's products in the Cincinnati territory.

W. G. Krueger will be manager of the Buffalo office of the Chicago Pump Co., with offices at 91 Tremont street, Kenmore, Buffalo, N. Y. Mr. Krueger has been associated directly with Chicago Pump Co. of many

◆

CAPITOL 914 SINK FIXTURE

For the moderate priced home, where costs are a vital factor, this Capitol 914 Sink Fixture presents a neat, dressed-up appearance and at a very reasonable price.

Nickel plated, the handles and soap dish are of china. Metal handles and metal soap dish can be supplied at slightly increased cost. With drain at rear, the soap dish sets well down between the handles on a short, securely fastened stud. 8 inch centers with female eccentric or male adjustable couplings.

A true Capitol fixture throughout, it is a remarkable value. Workmanship equals that of our highest priced sink fixtures.

The complete line of Capitol plumbing fixtures is handled by the leading plumbing supply houses. Install them and insure customer satisfaction.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

years. In the Dayton, Ohio, territory, Drake Engineering Co. will be the Chicago Pump Co.'s representatives, with offices at 915 Reibold building.

Oklahoma Heating Supply Co., 232 Commerce Exchange building, is appointed for Oklahoma City, Okla. R. I. Ludwig is sales manager.

R. L. Lamkin, Pyramid Life building, will operate the Little Rock, Ark., territory, and William C. Craig, 244 Kennedy building, Tulsa, Oklahoma, will handle the Tulsa territory.

◆

Spang, Chalfant & Co., Inc., Opens San Francisco Office

Spang, Chalfant & Company, Inc., Pittsburgh, Pa., has announced the opening of a sales office in the Russ building, San Francisco, Calif. J. V. Greer, formerly in charge of the Birmingham sales office, is in charge of the new office.

◆

Appoints New Representatives

Henry Weis Manufacturing Co., Inc., Elkhart, Ind., has recently appointed the following representatives to handle its line of shower cabinets:

Geo. Hamburger Co., 1715 California street, Denver, Colo.; R. L. Hanschke, 2020 Morrison avenue, Lakewood (Cleveland), Ohio; C. M. Hargrave, 13664 Wark avenue, Detroit, Mich.; H. H. Leukart, 297 S. High street, Columbus, Ohio; H. F. Willis, 521 Securities building, Des Moines, Ia.; Marcus T. Donahue, 546 Warder road, University City (St. Louis), Mo.; M. A. Sisk, 1108 House building, Pittsburgh, Pa.; Joseph M. Beglen, 622 Broadway, Cincinnati, Ohio.

Derbyshire, Mack & Morgan, Inc., Delaware avenue and South street, Philadelphia, Pa.; Hoover Bros. Co., 1008 Majestic building, Indianapolis, Ind.; C. H. Penningroth, 1617 Curdes avenue, Fort Wayne, Ind.; Builders Specialty Co., 9 S. Pinckney street, Madison, Wis.; Ben B. Holmes Co., Menominee, Mich.

◆

Blake Specialty Co. Appoints New Agent

The Blake Specialty Co., Rock Island, Ill., has appointed the Rivard-Gallagher Co., 1210 West 28th street, Kansas City, Mo., as its representative for the west half of Missouri and all of Kansas.

◆

Anthracite Institute Selects Executive Director

The Anthracite Institute, Philadelphia, Pa., has elected General Brice P. Disque as its executive director. General Disque brings to the anthracite industry a business perspective broadened by his wide diversification of experience in many lines of commercial and industrial activities. Following his resignation from the United States Army in 1919 he became president of G. Amsinck & Co., Inc., of New York City.

General Disque is best known for his success in organizing and directing the interests of the lumber industry of the Pacific Northwest. More recently he has been engaged in the financial and investment business in New York City.

National Plumbing and Heating Institute Is Closed

THE liquidation of the affairs of the National Plumbing & Heating Institute, Inc., which was closed on July 1, is being handled through the office of the treasurer, J. C. McEwen, of the Davies Supply Co., 6601 Grand avenue, Chicago. The directors of the Institute adopted the following resolution in connection with the termination of the organization:

> Resolved, that the decision of the directors of the National Plumbing & Heating Institute, Inc., to wind up its affairs as of July 1, 1931, and to discontinue its activities to secure the observance and enforcement of fair trade practice rules should not in any way be construed as indicating any lack of faith in the industrial welfare and elevation of commercial ethics that can be secured through the observance of fair trade practice rules.
>
> The directors express the hope that all groups within the plumbing and heating industries will carry on the work of securing the observance of the fair trade practice rules of this industry, and expressed the belief that such work is bound to result in very great benefits to the industry as a whole.

The official announcement released by the Institute office reads as follows:

The Official Announcement

AS A RESULT of the action of its Board of Directors, the National Plumbing & Heating Institute, Inc., closed its office and ceased its activities on July 1st. The Board was of the opinion that in view of conditions beyond their control there was little use in spending further money on what appeared to be a hopeless task. The Board was specific, however, in pointing out that they are still convinced of the advantages of following fair trade practices in the industries; in fact, they encouraged the continuance of the work by existing associations. Their disinclination to continue the work under the auspices of the Institute was based on sound reasons—reasons which will be disclosed as this article proceeds.

When the movement was started in 1929 a vast

MAN, OH MAN, WHAT A BUNCH OF RECORDS! ....AND WHAT RECORDS!

(First Cost) ÷ (Years of Service) = (what pipe costs). Reading Pipe is *low cost* pipe. Look at these—just a few of the thousands of Puddled Iron Pipe records which prove that Reading Puddled Iron Pipe will cut down pipe costs year after year by giving *uninterrupted* pipe service. There's only *one sure* way of getting such pipe—by looking for the Reading *indented* spiral on every length of pipe you specify or install.

70 Years Young— And Going Strong!

Since 1861, a Reading Puddled Iron Aqueduct over the Harlem River has been carrying clear, sparkling water! When the bridge was modernized in 1927, the pipe, still perfect, was put back in place!

Buried 30 Years— Ready for Another 30!

Nobody knows how long the 2" Reading Puddled Iron pipe line of the Danville State Hospital (Danville, Pa.) is going to last! Buried for 30 years, the pipe was still good when the hospital decided to extend the line—so they just joined the extension to the old pipe.

Half a Century? Just an Incident!

For 50 years, Rufus Yost, Reading, Pa., has enjoyed clear spring water from a line of 1¼" Reading Puddled Iron Pipe. The line is still in use—of course!

40 Years in an Ice Plant!

If a flood hadn't destroyed the plant of the Enterprise Ice and Coal Company, Harrison, Tenn., the 40-year-old Reading Puddled Iron Pipe it was using would still be in its service. The pipe's still good . . . even though the plant is gone!

Down in Birmingham, Too

Thirty years of service haven't aged a line of 15" Reading Puddled Iron Pipe, owned by the Birmingham Electric Co., Birmingham, Alabama. Another 20" line used for conveying steam since 1900, is still in excellent condition!

58 Years to Date— Good for Many More!

Spring Valley Water Company, serving the city of San Francisco, had 58 years of uninterrupted service with its 30" Reading Puddled Iron water main. After cleaning the pipe, the water company found it still serviceable.

READING PUDDLED IRON PIPE

For information and quotations address

READING IRON COMPANY

READING, PENNSYLVANIA

Atlanta, Baltimore, Boston, Buffalo, Pittsburgh, Cincinnati, New York, Detroit, Houston, St. Louis, San Francisco, Seattle, Chicago, Tulsa, Philadelphia, Los Angeles, Kansas City

READING PRODUCTS

Pipe Tubing Casing Sucker Rods Nipples
Couplings Bar Iron Blooms Cut Nails Boiler Tubes

You must get genuine Puddled Iron Nipples with Reading Pipe. the best combination for soil, waste, vent and inside conductor lines.

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

In public washrooms, too...

SOLID NICKEL SILVER *plumbing fixtures look better longer...*

● Consider the plight of waste drains in public washrooms. Soaps, cleansers, grease and dirt from grimy hands, hot and cold water, constant use...continual exposure to corrosive fumes. Can you conceive of a better material for this type of sanitary fixture than Solid Nickel Silver?

Good looking Solid Nickel Silver can't peel or wear through and expose unsightly base metals. It's solid...all through...the identical white metal throughout. It's tough ...like bronze...giving longer life to valve seats. It's easy to care for...quickly cleaned to its original silvery lustre.

Many modern installations...where service is unusually severe...demand longer wearing, better looking plumbing fixtures. For this type of service there's no better material than Solid Nickel Silver.

Solid Nickel Silver pop-up waste and beehive strainer used in new Bloomingdale Department Store, New York. Manufactured by THE CHICAGO FAUCET COMPANY, Chicago. Bloomingdale's new store shown in circle above. Starrett & Van Vleck, Architects; Jarcho Bros., New York, plumbing contractors.

SOLID Nickel SILVER

INCO NICKEL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Miners, refiners and rollers of Nickel . . . Sole producers of Monel Metal

majority of the industries looked at the fair trade practice movement as something that would, in and of itself, cure the existing ills of the industries. This majority, imbued as they were with enthusiasm, failed to realize that in addition to belief there was needed both individual and collective reform and a tremendous amount of individual and collective effort. In short, the difficult task of bringing about the needed reforms and the application of the needed energy was left entirely up to the staff and officers of the Institute, the organization created to administer the fair trade practice work. The industries and a majority of the individuals in them retired to the side lines to watch the approach of the millennium.

Of course, the millennium never came; but before we go into the reasons why this phenomenon failed to materialize, let us discuss that minority in the industries who never did and never will believe that fair trade practices are the kind of practices to follow. This group, fortunately small in number, at first welcomed the movement in the belief that it would tie the hands of their competitors, thus leaving them free to pursue the even tenor of their devious ways. But as time went on and they saw that the fair trade practice movement did not tie the hands of their competitors they joined the anvil chorus.

The millennium, so fondly anticipated by those optimistically inclined, never came for three reasons:

1. There are few men willing to forego immediate advantages in the belief that by so doing greater advantages will accrue to them in the future.
2. The Federal Trade Commission, on whose sincerity, energy and helpful attitude the whole movement was based, failed to render the needed assistance.
3. The depressed business conditions had a stultifying effect on the consciences of the industries and offered a seemingly valid excuse for fast work and sharp practices.

In short, supernatural powers rather than the feeble faculties vouchsafed to men were needed to justify the hopes of the industries. There is little reason to believe that supernatural powers were interested.

It may be profitable for us to examine, in retrospect, these three causes of failure. The first cause is closely bound up with the second, and in a certain degree with the third. Whether Ignatius Loyola had a prescience of present conditions in these industries when he said that "Man is a wolf to man," is of course debatable. There can be no doubt, however, that were he living today he might find at least a modicum of evidence to support the affirmative side of the debate. In many cases, where orders are concerned, fair trade practices are momentarily forgotten and are only resurrected by the unsuccessful contender. Of course, there is no reason for becoming excited about this melancholy fact. Probably it always has been, and always will be, a natural attribute of man. Everybody knows now, and knew when the trade practice movement was started, that oaths of undying fealty to fairness and honesty far outnumbered the actual practice of these admirable virtues. The founders of the fair trade practice movement very wisely considered this factor. They knew that without the element of compulsory conformity the trade practice rules would become nothing more than high sounding phrases to be followed or disregarded as the exigencies of the circumstances seemed to dictate. They believed the Federal Trade Commission would furnish the needed element of compulsion.

Their belief in the Federal Trade Commission was certainly justified on the basis of the data available at the time. The Commission's development of the trade practice conference idea was hailed by business as a constructive step and industries such as ours proceeded with the formulation of rules designed to eradicate the unfair practices current at the time. Honest men felt that the government was coming to their aid. Optimism was the accepted philosophy of the time and the voice of the skeptics was stilled. Hardly had the echoes of the first hosannas died down when vague rumblings were heard. It was alleged that the Commission had gone too far and was going to change its policy on trade practices. These rumors were disregarded by most of those in our industries. We felt that persons out of sympathy with the fair trade practice movement started the rumors to discredit the effort. The subsequent action of the Commission did little, however, to stimulate courage and confidence. The rules of other industries were revised and notice was served on our industries that our rules were being reconsidered.

This, in itself, wasn't so bad. We still had left the moral power of the industries to convince violators that they should change their ways. But when we tried to use this moral power, the violators were quick to assert that there weren't any teeth in the fair trade practice movement—and, anyway, their competitors weren't living up to the rules so why should they. This attitude confined the effects of the fair trade practice work to those who needed it least—the many honest elements in the industries—and left the dishonest elements untouched.

The uncertain attitude of the Federal Trade Commission did not influence the energy of the officers and staff of the Institute. They went right ahead trying to do a job. Complaints were received and investigated and, on the whole, a lot of good was accomplished. But those charged with the responsibility of administering the trade practice rules soon came to a realization that, while doing good, the work could not be fully effective unless something was done to curb or eliminate the activities of those seemingly irresponsible and incorrigible elements in the industry who would respond to nothing less than compulsion.

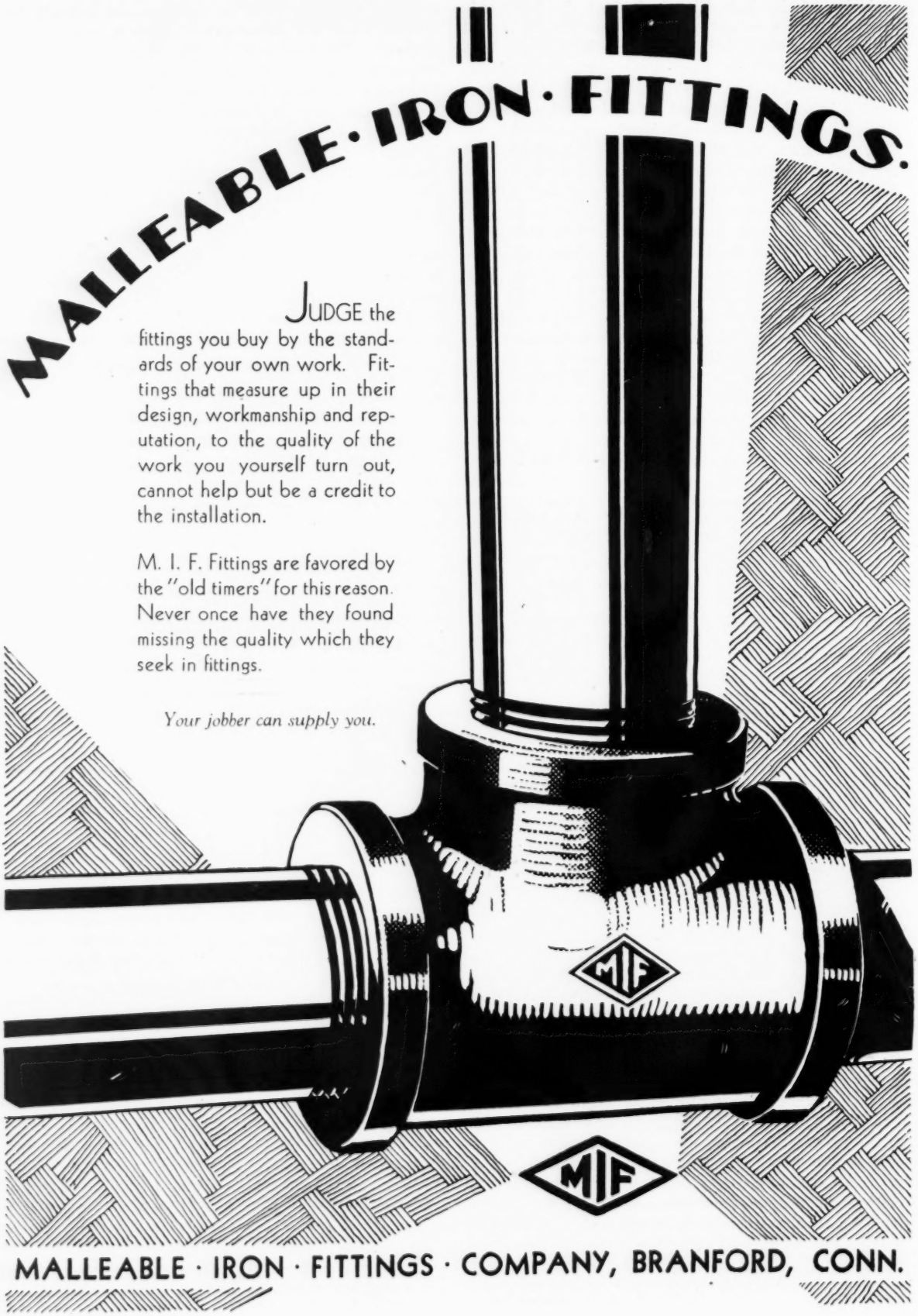
A sincere effort was made to develop a case of violation of the rules with sufficient supporting evidence to warrant referring it to the Federal Trade Commission. Despite diligent effort, such a case could not be secured. It should not be inferred from the foregoing statement that there were no violations

MALLEABLE · IRON · FITTINGS.

JUDGE the fittings you buy by the standards of your own work. Fittings that measure up in their design, workmanship and reputation, to the quality of the work you yourself turn out, cannot help but be a credit to the installation.

M. I. F. Fittings are favored by the "old timers" for this reason. Never once have they found missing the quality which they seek in fittings.

Your jobber can supply you.



MALLEABLE · IRON · FITTINGS · COMPANY, BRANFORD, CONN.

of the rules. There were plenty of violations but there is a vast difference between knowing that a violation exists and securing the necessary evidence. In most cases, evidence of violations must be secured from the customers of the alleged violator. In the cases investigated these customers refused the necessary evidence on the ground that they would lose preferentials or some other special consideration they were receiving. In short, they were unwilling to forego immediate advantages in the interest of permanent stability.

If there had been a real chance to secure evidence of a violation of any important rule, there is no doubt that such violation would have been vigorously prosecuted by the Institute with the aid of the Commission. In the absence of such evidence, specific and complete, it was obvious to those charged with the responsibility of carrying on the work that recourse could only be had to the moral influence referred to above. This moral influence wouldn't do the job.

In more prosperous times, it is probable that the continued existence of the Institute would have been warranted on the basis of actual accomplishments. The depressed business conditions—the third reason for failure—made it extremely improbable that actual accomplishments could be demonstrated. In times of plenty, when there is enough business to go around, competition becomes less keen and a spirit of "live and let live" pervades the industries. The productive machinery of the industries is almost fully occupied and most business transactions are on a high ethical plane. But when opportunities for business diminish the manager of a business, confronted with a fixed overhead and idle productive machinery, becomes panic stricken and decides that he must have orders at any cost. Ethical principles are thrown to the winds and what started as the thoughtless act of a panic-stricken man becomes the accepted practice of the industry. Deaf ears are turned to those who speak of fair trade practices and the law of the jungle reigns.

To be sure, the Institute could have been continued as an educational force. It could have, during these trying times, preached the gospel of fair dealing and honesty. But would it have been worth the price? This is the decision that confronted the Board of Directors. They decided that the work should go on —using, however, the existing associations as the means of continuing it. They felt that an Institute, created to administer and enforce the rules, should cease to function when it was demonstrated that it could not accomplish its task. Their decision was an honest one. They at least established a precedent, which may be emulated by others, of trying to do a job after failing to do it, admitting the failure, and having the courage to stop spending the industries' money on further futile effort.

The fair trade practice movement is not dead. The Institute is dead, but the work it tried to accomplish should go on. Maybe the associations now in existence in the industries can do the job alone. At least they deserve a fair trial. While costly, the experience of the National Plumbing & Heating Institute is not without considerable value.

1. It codified and defined fair trade practices.
2. It awakened to consciousness and action the honest elements in the industry.
3. It created a measuring stick to define honesty and dishonesty.
4. It alleviated the severity of the effects of the depression in our industries.
5. Its activities, successes and failures, will serve as a guide to further work in the trade practice field.

The degree of success the movement will achieve in the hands of the associations in our industries will depend on whether or not they are willing to take heed of the Institute's experience, and as to whether or not they will follow sound principles of operation. These principles were known to the officers and staff of the Institute, but they could not be followed in all cases because of the inherent limitations of the organization. These limitations are not present in other associations.

Trade Practice work in order to be successful must be based on local and state groups of fair trade practice committees. The Institute was unable to secure the appointment of such groups by all of the existing associations. Whether these groups were formed and actively functioning, trade practices were immeasurably better than in unorganized localities. Trade practice work, in order to be successful, must be amply financed. The Institute never had enough money to spend on local contacts. Trade practice work cannot be successfully conducted by correspondence. Unless there is money available for the necessary contacts and investigation, the only activity that can be carried on is through correspondence and the printed word. These media do not suffice.

Before fair trade practice work can be successful in these industries or in any other, there must be created a real belief in the movement. Lip service to fair dealing creates a figment of honesty rather than a reality. Unless an individual is willing to forego immediate advantages in the interest of permanent stability, he had better admit at the outset that he does not believe in fair trade practices. There was too much talk about fair trade practices and too little conformity to them. This situation, unless corrected, will negate the efforts of whoever tries to administer the rules.

The rules approved by the Federal Trade Commission on May 29, 1931, are in force. They are printed on the back page of this folder. You will see that the industries still have all the rules they require to go ahead. All that is needed is the necessary energy and, above all, the belief.

The National Plumbing & Heating Institute, Inc., was not the fair trade practice movement. It was merely the instrumentality for administering the rules. The fact that the Institute has passed out of the picture should not disappoint honest men or embolden dishonest men. In the existing association, the industries still have the machinery for cleaning house.

Left to right: C. A. Enslow, Elmer Laudon, William Gerstenberger, Dan Rom, Fred Schwantes, Herman Zien, F. C. Hanson, Charles Priegel, George Bronenkant, A. J. Mang, C. W. Johnson, Andrew Steele, Paul Grunau, Edward Trebs, and R. H. Mattison. Photos taken at party given by Plumbing and Heating Club of Wisconsin in honor of William Emory of the American Radiator Co.

Wisconsin P. & H. Club Honors Its Treasurer

A farewell party to William Emory, former manager of the Milwaukee branch of the American Radiator Co. and recently appointed manager of its Detroit branch, was given by the Plumbing and Heating Club of Wisconsin, at Waterford Woods, near Waterford, Wis., on July 9. Entertainment included golf and cards, with a luncheon at noon. There were 62 persons in attendance.

Members began arriving at Waterford Woods as early as ten o'clock in the morning, played golf through the morning, and gathered together at noon to do homage to their friend. Mr. Emory was presented with a 24 inch genuine cowhide Gladstone bag during the course of the noon luncheon. He was one of the charter members of the Plumbing and Heating Club and during the last year has served as treasurer.

At the close of the golf tournament in the afternoon, the following members of the Plumbing and Heating Club were found to have won prizes: Frank A. Mueller; A. L. Stridenschwartz, E. W. Laudon, C. H. Runge, L. W. Hessler, John Neis, E. W. Johnson, and H. J. Stock.

Business Personals

WALKER H. BOWMAN, JR., has been appointed vice president and general manager of the Hoffman Heater Co., Louisville, Ky., to succeed the late O. P. Simler.

J. A. DOUCETT has been appointed vice president and general sales manager of Revere Copper & Brass., Inc., according to a recent announcement by Donald Dallas, president of the organization. Mr. Doucett will make his headquarters at 230 Park avenue, New York City. Mr. Doucett, who has enjoyed a long experience in the brass and copper industry, was previously vice president and assistant general sales manager. Before that he was president of the Michigan Copper & Brass Co., Detroit, now the Michigan Division of Revere. Formerly he was associated with the American Brass Co. in its branches at Buffalo and Kenosha. VINCENT W. ALLEN has been named manufacturing manager of the corporation. Mr. Allen is to be located at the general offices at Rome, N. Y. He is coming from Detroit where he has been works manager of the Michigan Division. Mr. Allen was previously connected with the American Brass Co., also.

JOHN J. RILLEY has been appointed New England district manager for A. M. Byers Co., of Pittsburgh, Pa., to fill the vacancy created by the recent death of A. A. Gathaman, who had filled that position for more than ten years. Mr. Rilley has been associated with the Byers Co. for a number of years.

WILLIAM CARVER has been transferred from the Jacksonville, Fla., branch of The Standard Sanitary Mfg. Co. to the Atlanta, Ga., office.

M. C. TERRY has been appointed chief refrigeration engineer of the Westinghouse Electric and Mfg. Co., with headquarters at East Springfield, Mass. As chief refrigeration engineer Mr. Terry will report to T. S. Perkins, general manager of merchandising engineering. Mr. Terry started with the Westinghouse company in 1919 as a member of the graduate student course. The following year he became a member of the Research Department at the South Philadelphia works. Since that time he has been specializing in refrigeration engineering work.

WILLIAM G. BREWTON has been appointed sales and advertising manager of the Semler Co., Jeannette, Pa., manufacturers of cast iron steam and drainage and sprinkler and flanged fittings. Mr. Brewton was formerly connected with the Standard Tank & Seat Co., Camden, N. J., and more recently with the Plumbers and Heating Contractors Trade Journal, as eastern advertising manager.

J. H. WALKER of the Detroit Edison Co., Detroit, Mich., has been designated by the American Society of Heating & Ventilating Engineers as the representative of that organization on the Committee of Ten—Coal and Heating Industries. R. V. FROST, Frost Research Laboratories, Norristown, Pa., has been designated as the alternate of Mr. Walker on the committee.

W. J. HOGAN, JR., formerly with Clare & Co., plumbing and heating contractors, Atlanta, Ga., has joined the sales forces of The Noland Co., Inc., 270 Garnett street, SW, Atlanta. Mr. Hogan has been connected with sales and contracting work for the past eleven years.

AUTOMATIC HEAT

A new editorial service for the growing number of heating dealers who are bringing higher standards of comfort and convenience to the American home

In this Issue:

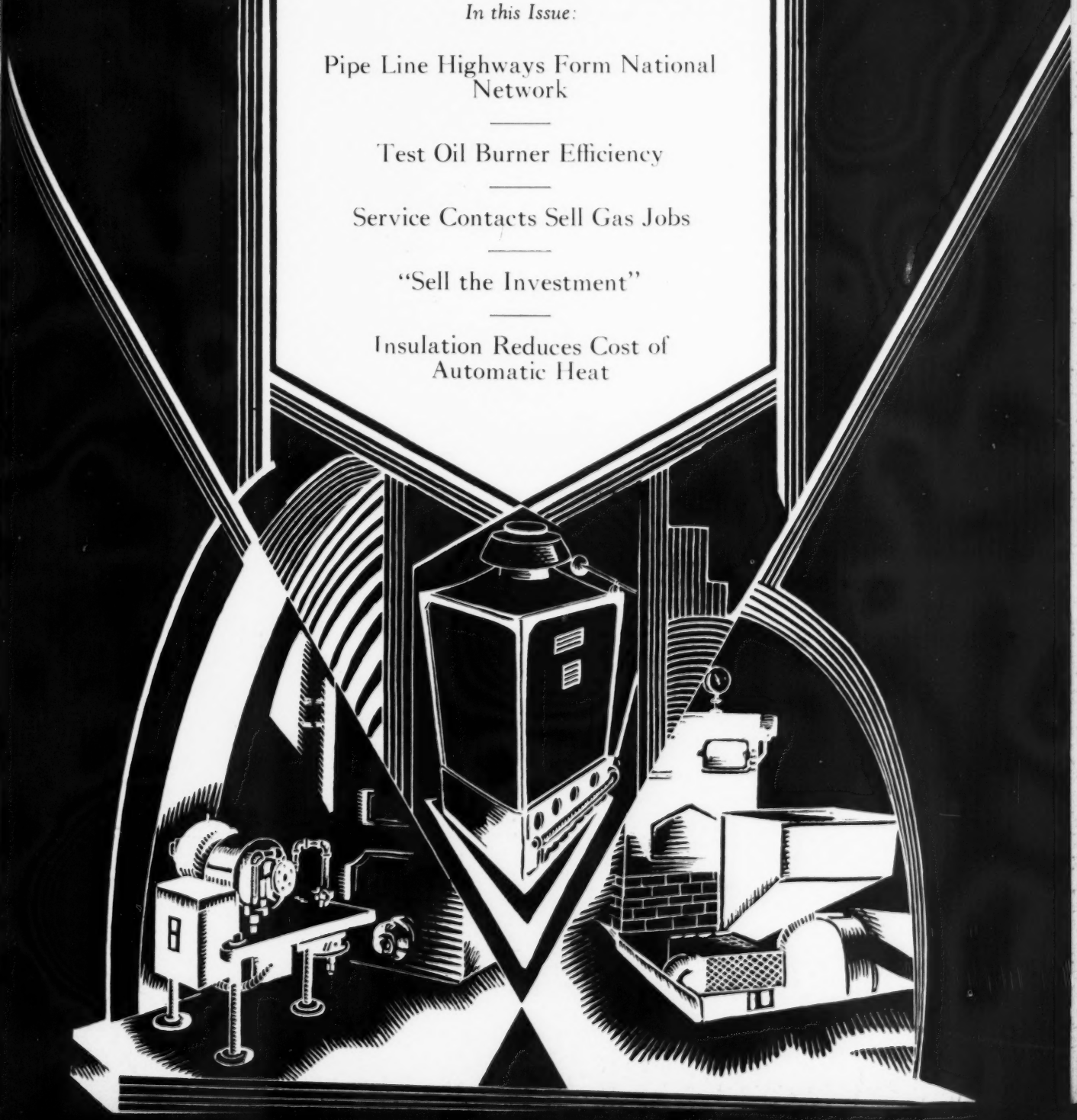
Pipe Line Highways Form National Network

Test Oil Burner Efficiency

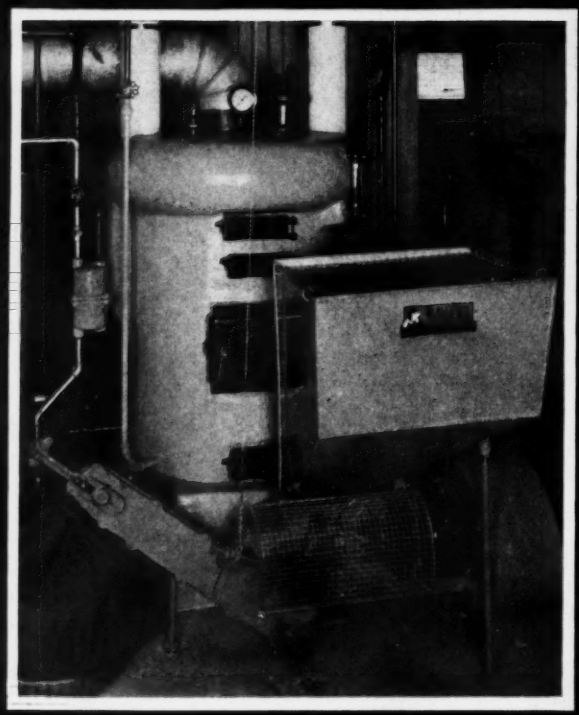
Service Contacts Sell Gas Jobs

"Sell the Investment"

Insulation Reduces Cost of Automatic Heat



AUTOMATIC HEAT



Whatever the Fuel or Firing Requirements BURNHAM Makes the Boiler

N. B. Here is a Round Burnham Boiler, equipped with automatic stoker, to burn buckwheat coal. Instantly responsive to the close reactions of thermostatically controlled stoker firing. Because—

1—Its deeply corrugated crown sheet triples the heat absorbing surface directly above the fire plan;

2—Its extra fire travel prevents loss of heat at the chimney;

3—Every inch of surface exposed to the heat, is water backed metal.

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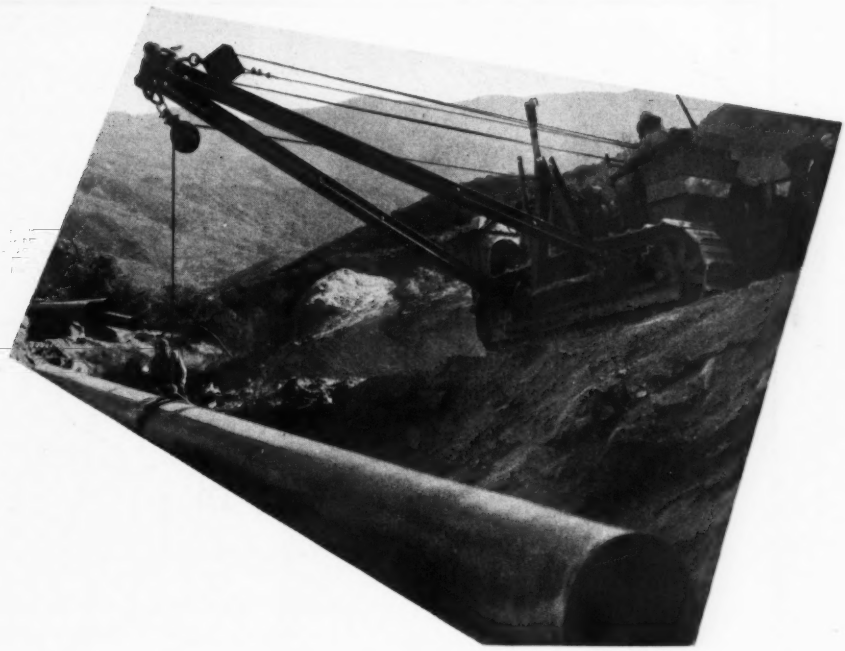


Putting down a natural gas pipe line. A caterpillar tractor equipped with an all steel side boom is used to lift a 24-ft. section of 22-in. pipe into position in the pipe line trench. Work like this is now under way in many parts of the United States

Pipe Line Highways Form National Network

STEADILY pushing outward toward the important centers of business, population and commercial activity, an already intricate network of natural gas pipe lines is being lengthened and extended in new directions. One or more localities in about half the states of the Union are already supplied with natural gas, either from nearby fields or by means of trunk pipe lines.

Although natural gas has been in use for many years, its distribution has been restricted to limited areas close to the gas fields. In recent years, however, the discovery of new fields resulted in the production of vast quantities of natural gas in large and widely separated areas and it became necessary to consider the transmission to distant markets. Coincident with this increase in production came a new development in pipe manufacture—a method of welding was discovered that greatly decreased the cost of manufacture and at the same time permitted the use of pressures more than double those formerly in use. At the same time new methods were developed for constructing pipe lines, making it possible to reduce the cost and increase the speed of construction.

Upon completion of propects now under way or contemplated, nearly half of the 94 cities in the United States of a population of 100,000 or more will be lined up for distribution of natural gas.

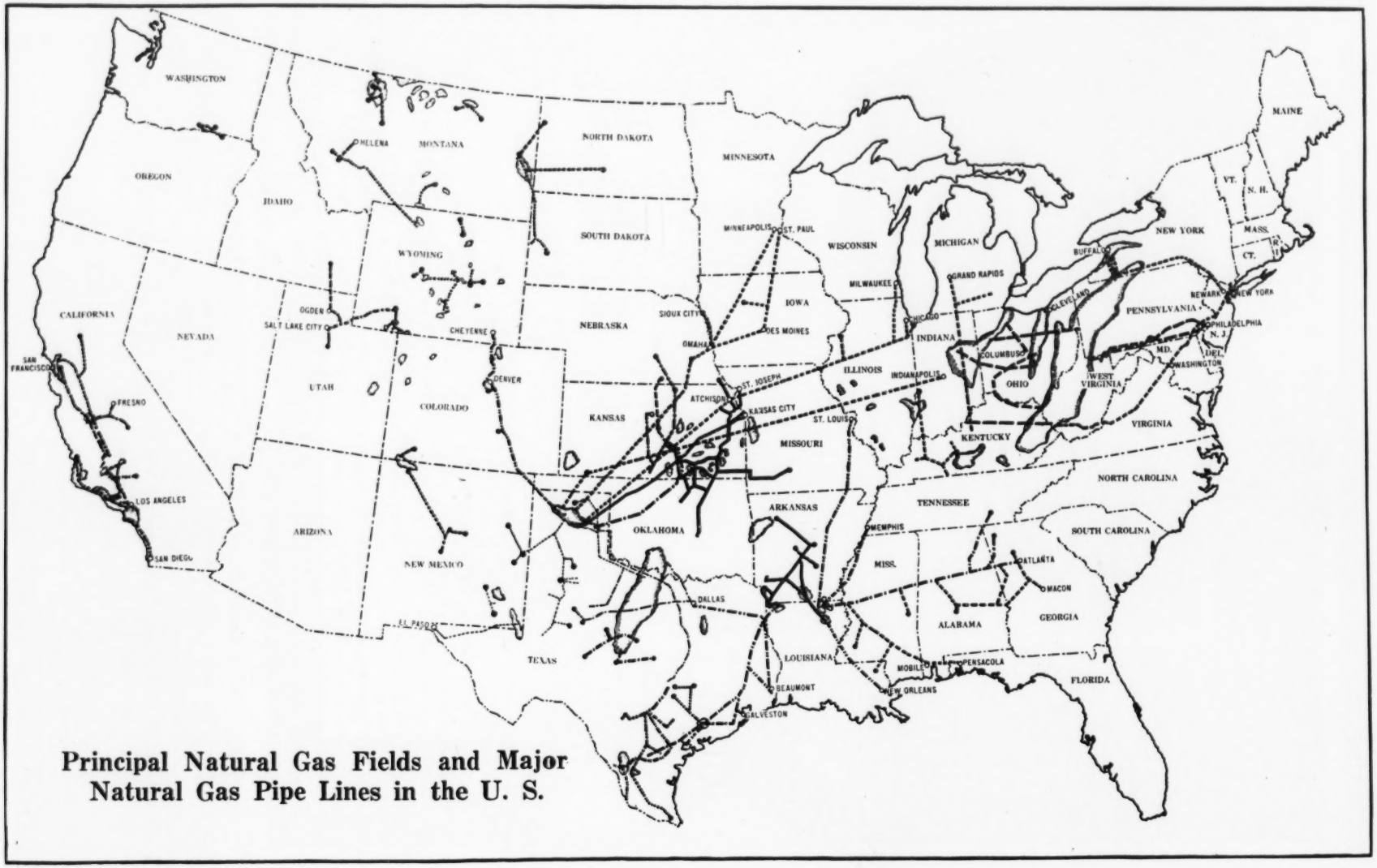
Altogether, more than 3,300 cities and towns are using natural gas, and the number of consumers is considered to be in excess of 5,000,000. It is estimated that nearly 85,000 miles of trunk lines are now in operation in this country, exclusive of gathering lines.

A significant step during 1930 was the transportation of natural gas in liquid form to cities remote from pipe lines. Steel tank cars carried the liquid gas under pressure to plants which vaporized it and distributed it with satisfactory results. This system of gas delivery opens the way for gas service in hundreds of towns with populations between 2,500 and 10,000 which have no gas service at present.

Reserve Supply Is Large

Approximation of natural gas reserves is possible within certain practical limits. The United States Bureau of Mines estimates the major gas fields in the Panhandle of Texas, the Monroe and Richland fields of Louisiana and Lea County fields in New Mexico to have supplies which at the present rate of withdrawal should last between 17 and 90 years. On the other hand, gas fields in Ohio, Pennsylvania and West Virginia, which have been drawn upon for a good many years and are generally conceded to be nearer exhaustion, are nevertheless thought to con-

The map reproduced with this article as well as much of the other data is made available through the courtesy of Standard Statistics Co., New York City.



Principal Natural Gas Fields and Major Natural Gas Pipe Lines in the U. S.

tain supplies which will last for a good many years to come.

Consumption Increases Rapidly

A comparison of totals for 1929 with those of earlier years indicates the rapidity with which the use of natural gas has increased during the last ten years. Output in 1929, for example, was nearly triple that of 1919. Between 1923 and 1929 production practically doubled. On only one occasion were the gains of 1929 exceeded; that was in 1923 when production advanced 31 per cent over the preceding year. Showing an average gain of 10.6 per cent for the 1920-1929 interval, the annual percentage increases range from the 31 per cent maximum to a minimum of 3.5 per cent shown for 1925 over the preceding year. Only in 1921 was any setback experienced; reflecting the sharp contraction in general business which took place in that year, a decline of 16 per cent occurred.

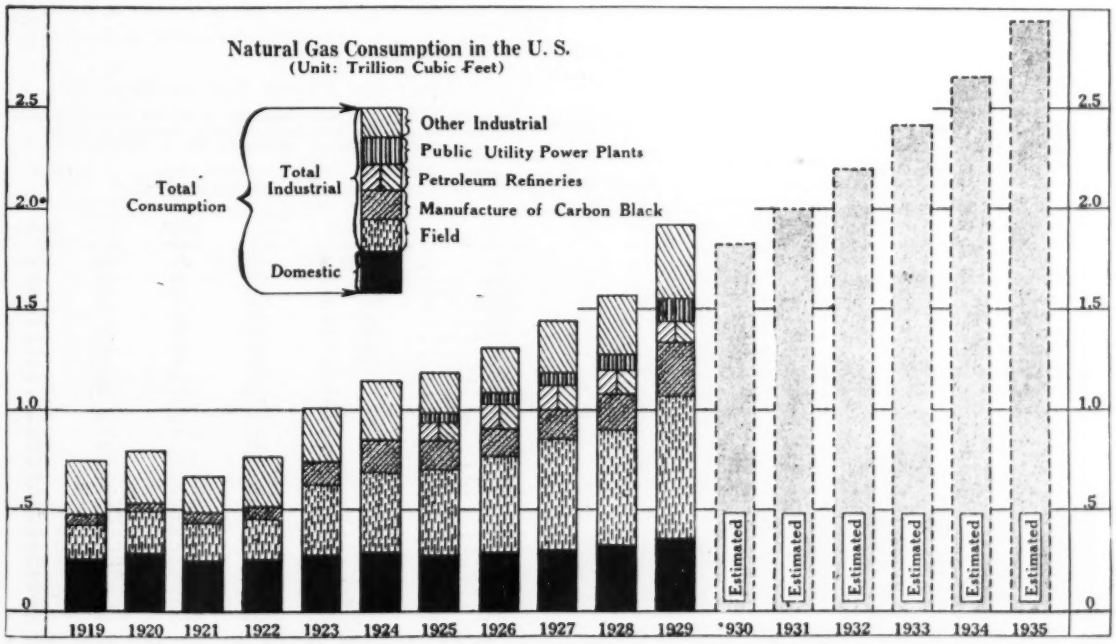
Showing graphically the manner in which consumption of natural gas for various purposes has grown during the past ten years, United States Bureau of Mines figures for 1919 to 1929, inclusive, have been made the basis for the chart on this page.

Future Prospects Are Bright

It is evident from this chart that the trend of natural gas consumption in the United States to date has been almost uninterruptedly upward. Actual figures for the year 1930 will not be available until October, 1931, but it is the opinion of leading authorities that consumption failed to equal the 1929 peak record. The many pipe line projects completed, under construction or contemplated are reasons for expecting substantial future increases in consumption of natural gas.

Welding a firing line or rolling joint on a 20-in. pipe line in the Texas gas fields

The bars on the chart for the years 1930-1935 are based on estimates by Standard Statistics Co., Inc., New York City, on the assumption that the average annual rate of increase of the past fifteen years can



Consumption of natural gas in the United States from 1919 to 1929, as well as the different purposes for which this gas is employed, is shown by the above chart, which is based on reports of the U. S. Geological Survey. Lightly shaded bars for the years 1930 to 1935 represent "probabilities" of those years as indicated by the application of mathematical forecasting principles to actual results for a period of 15 years back

AUTOMATIC HEAT

Basic Gas Rates in Leading U. S. Cities

NATURAL GAS

City—	Calorific Value (B.T.U.)	Rates
Los Angeles	925-1,200	1st 300 ft. or less 80c. Minimum chge. 80c. 72½c per M. for all over that amount.
Pittsburgh	1,130	63c per M. Minimum chge. $1. Disc't 3c per M.
San Francisco	1,150	1st 5,000 ft. 8½c per C.; next 25,000 7½c per C. Service charge 60c.
New Orleans	950	50c per M. net.
Kansas City	----	1st 400 ft. 75c; next 1,600 9c per C.
Louisville	1,031	100 ft. or less, 40c; 200 ft. 47c; 300-600 ft. 62c. Disc't 10%.
Dallas	1,015	1st 700 ft., 16.67c per C.; next 19,300 ft., 7.5c per C. Disc't 10%.
Fort Worth	1,000	75c per M. (10% Disc.) Minimum chge. 50c.
Denver	835	90c for 1st 400; next 600, 15c per C., next 1,000, 12c. Minimum chge. 90c.
Buffalo	1,050	75c less 5c, per M. Minimum bill $1.
Cleveland, O.	1,050-1,100	50c for 1st 5,000 ft.; 55c per M. for next 10,000 ft.

MANUFACTURED GAS

City—	Calorific Value (B.T.U.)	Rates
Detroit	530	1st 50,000 89c per M. (10c disc't). Minimum chge. $1.
New York	537	$1.15 per M.
Chicago	530	60c for 1st 400 ft.; 90c per M. for next 49,600. Minimum bill 60c monthly. New rate on basis of thermal content: first 2 therms, 58c; next 24 therms, 17c per therm. (Note: 1 therm = 100,000 B. T. U.) Minimum.
Boston	528	50c per month plus 10c per C.
Baltimore	500	85c per M., net.
Minneapolis	550	Gross $1.04 per M.; net 89c per M.
Indianapolis	570	$1.05 per M.
Portland, Ore.	570	1st 300 ft. or less 75c; next 4,700, $1.09. Disc't 5%.
St. Paul	550	$1.10 gross; 90c net. Meter chgs. 25c.
St. Louis	600	1st 300 ft. or less, 75c; next 4,700 95c per M.
Duluth	530	Gross 57c. Service charge, 75c.
Rochester	537	$1 per M. for 1st 20,000 ft.
Syracuse	537	$1.13 per M. for 1st 20,000 ft.

be maintained. Certainly, efforts made in the past two or three years to extend distribution of this fuel should greatly enlarge domestic and industrial consumption.

Distance Is No Hindrance

Demonstrating the feasibility of long distance transmission, natural gas produced in the Monroe and Richland fields in Louisiana is at the present time being delivered through a 526 mile pipe line to St. Louis, Mo. The near completion of the 1000 mile pipe line from Texas to Chicago is further proof that distance, in itself, is no obstacle to the transportation of natural gas. Following is a list of some of the longest gas lines in operation or projected:

			Length (Miles)
Amarillo Field	to	Chicago	1,000
Amarillo Field	to	Indiana State Line	950
Texas Panhandle	to	Minneapolis	800
Monroe Field	to	St. Louis	526
West Va. Fields	to	New Jersey	500
Monroe & Richland Fields	to	Atlanta, Macon, etc.	420
Kentucky Fields	to	South Michigan	400
Hiawatha Dome	to	Salt Lake City	380
Amarillo Field	to	Denver	350
Buttonwillow & Kettleman Hills Field	to	San Francisco	297
El Paso	to	Bisbee, Ariz.	275
Eastern Kentucky Field	to	Indiana	260
Monroe Field	to	Memphis	210
Lea, N. Mex. Field	to	El Paso	205
Kettleman Hills Field	to	Richmond	200
East. Kentucky Field	to	Louisville	200
San Juan Basin	to	Albuquerque	200

The use of gas for firing heating plants in dwellings and other buildings is one of the most promising markets for this fuel. That it is not more widely used is due to the high cost of the manufactured variety. That this use can be augmented by the employment of natural gas is indicated by the following comparison of statistics concerning consumption of the two varieties.

During 1930, according to the American Gas Association, some 8,842,591 consumers burned 353,832 million cubic feet of manufactured gas, of which probably only about 7 per cent was used for house heating purposes. The aggregate is at the rate of 40,000 cubic feet per customer. On the other hand, 4,082,161 domestic natural gas consumers used an average of 64,000 cubic feet each. Disregarding the difference of heat content and assuming that the average consumer uses no more manufactured than natural gas for cooking and hot water heating, it appears logical to conclude that the greater consumption of natural gas per customer is due, in a large extent, to its use for other purposes, logically house heating.

In theory, prospective markets for the sale of natural gas exist in practically every manufacturing center of the United States.

But, as experienced gas men have recognized for some time, coal and oil are fuels which are not to be so easily displaced as the technical aspects would, at first, indicate.

Natural Gas Versus Manufactured Gas

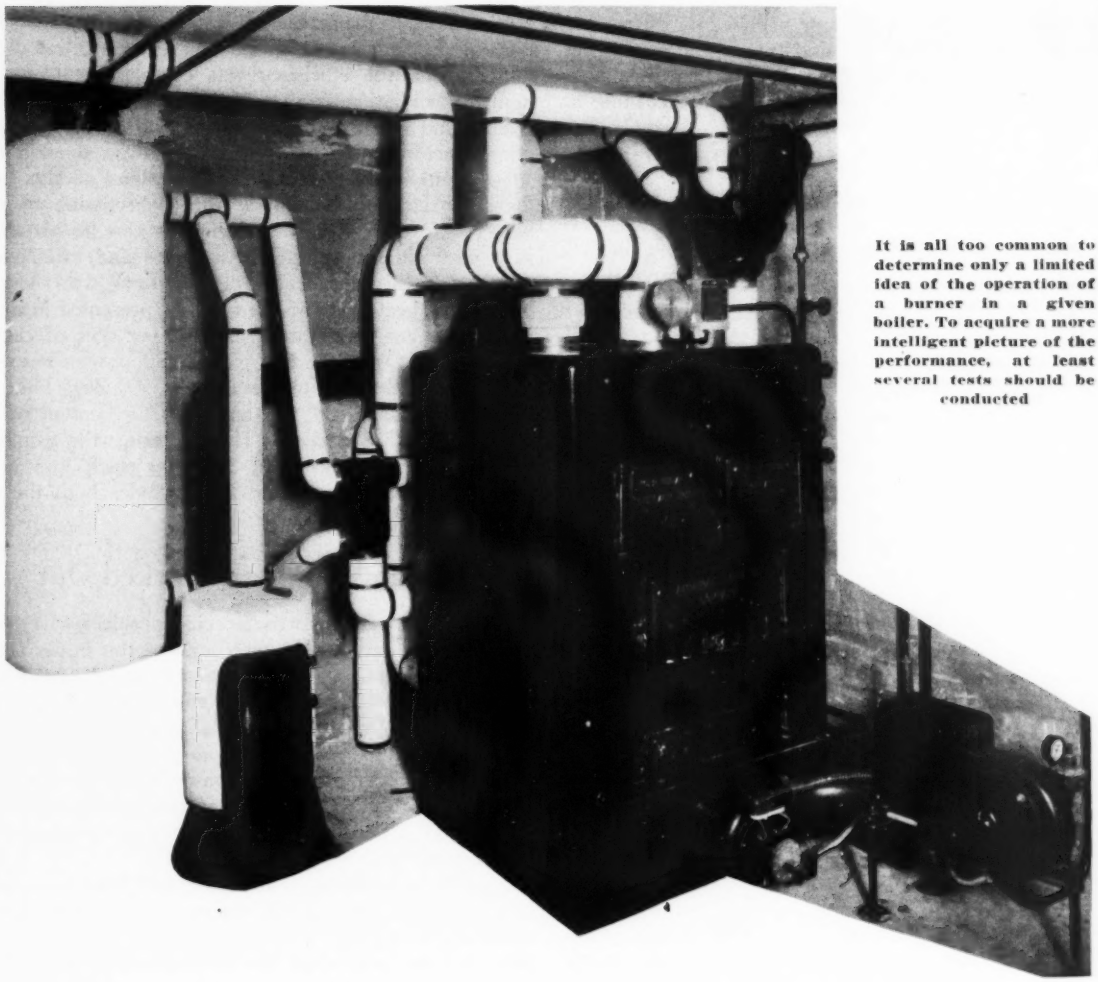
Savings in monthly bills resulting from the substitution of natural gas for manufactured gas, according to the schedules instituted by Pacific Gas & Electric Co.

	MANUFACTURED GAS —540 BTU Content—	NATURAL GAS —1,150 BTU Content—		SAVINGS	
Vol. in cubic ft.	Monthly charges*	Equivalent vol. in cubic ft.	Monthly charge†	Monthly, by substitution of nat. gas	Relative to former bills
100	$0.70-$0.80	47	.64	.16	20%
200	.70- .80	94	.68	.12	15
300	.70- .80	141	.72	.08	10
400	.70- .80	188	.76	.04	5
500	.70- .80	235	.80	--	--
600	.70- .80	282	.84	.04‡	--
700	.70- .80	329	.88	.08‡	--
800	.72- .80	376	.92	.12‡	--
900	.81	423	.96	.15‡	--
1,000	.90	470	1.00	.10‡	--
1,200	1.80	563	1.08	--	--
1,400	1.26	657	1.16	.10	4
1,600	1.44	752	1.24	.20	14
1,800	1.62	845	1.32	.30	19
2,000	1.80	939	1.40	.40	22
2,400	2.16	1,127	1.56	.60	28
2,800	2.52	1,315	1.72	.80	31
3,200	2.88	1,503	1.88	1.00	35
3,600	3.24	1,690	2.04	1.20	37
4,000	3.60	1,878	2.20	1.40	38
5,000	4.50	2,348	2.60	1.90	42
7,500	6.75	3,522	3.59	3.16	47
10,000	9.00	4,696	4.59	4.41	49
20,000	16.90	9,392	8.14	8.76	52
30,000	24.80	14,088	11.67	13.13	53
50,000	39.40	23,480	18.71	20.69	53

*MANUFACTURED GAS RATES, 1st 10,000 cubic feet, 90c per M; next 20,000, 79c per M; next 40,000, 73c; next 80,000, 68c, etc. Minimum charge 70c for apartments where 4 or more meters are on one service; 80c for all other consumers.

†NATURAL GAS RATES, 1st 5,000 cubic feet, 8.5c per C; next 25,000, 7.5c per C; next 170,000, 6c per C; excess 5c per C.

‡Excess.



It is all too common to determine only a limited idea of the operation of a burner in a given boiler. To acquire a more intelligent picture of the performance, at least several tests should be conducted

Test Oil Burner Efficiency

By A. H. SENNER

The second in a series of articles on tests which the heating man should be able to make

IN the preceding article, complete data and certain computations involved in an efficiency test of a domestic oil burner were presented. All of the required readings were considered, and the numerical value of the efficiency was arrived at. Ordinarily it is customary and highly desirable to make a complete heat balance in order to determine principally, first, the accuracy of the test, and second, to analyze in greater detail the relative amounts of useful heat and wasted heat. Obviously the heat which is evolved from the combustion of a certain quantity of oil is all utilized in some manner or other. The useful heat according to our requirements is that which passes into the steam, water, or air, depending upon the type of heating system involved. Just what becomes of the rest? Each pound of oil contains 19,750 Btu. and it was shown that approximately 79 per cent of this heat was absorbed by the heating medium as useful. Accordingly approximately 15,600 Btu. of each pound of fuel is utilized directly by transmission to the heating medium. What becomes of the other 4,150 Btu.? This question can best be answered by striking a heat balance,—in ordinary language, we are going to do some bookkeeping in Btu. and we will be interested in tallying input against outgo.

In considering the number of avenues of escape for the heat of the fuel, we will find that in the case of an oil burner they are quite limited. In fact, assuming complete combustion, the heat is dissipated according to the following tabulation:

1. Useful energy which is absorbed directly by the heating medium.
2. Heat radiated from the boiler. (This may or may not be useful heat.)
3. Heat which passes up the stack.

The latter loss, known as the stack loss, consists of two parts, (a) the dry stack loss and (b) the stack loss due to the water vapor formed from the combustion of the hydrogen in the fuel. These losses possibly require some additional explanation. The dry stack loss is the loss represented by the sensible heat of the hot dry gases such as carbon dioxide, excess oxygen, nitrogen and so on which are invariably present in the stack gases as a result of the combustion of oil. In addition, however, to the dry stack gases, there is inevitably a quantity of water vapor formed when petroleum is burned because of the presence of hydrogen in the fuel. In fact, for every gallon of oil consumed, more than a gallon of water is formed. This water is not only converted into steam in the firebox of the boiler, but is also superheated to the temperature of the stack gases as they leave the boiler. This loss due to the formation of water vapor is fairly constant and generally equal to approximately 8 per cent of the total heat value of the fuel. It is the presence of this water vapor in the exhaust gases which establishes a practical limit to the efficiency which can be attained with an oil burner, because the reduction of the stack temperature below a certain level results in condensation in the chimney, which is admittedly undesirable. The dry stack loss varies directly with the stack temperature and therefore is to a great extent under the control of the boiler designer.

Returning to the tabulation presented above, it is seen that the first item, namely, the useful energy, was determined when the efficiency was computed. The next item, the radiation from the boiler, is not obtained so readily and usually is recorded as one of the undetermined factors. This will be dealt with at more length subsequently. The detailed computations of the stack loss are rather too complex for a discussion of this scope, but fortunately the stack loss can be presented in a very simple, yet highly accurate and satisfactory graph. In this graph, Fig. 1, the total stack loss in per cent of heat value of the fuel is represented in terms of the flue gas temperature and the per cent of carbon dioxide or CO_2 in the flue gases. Suppose, for example, that the flue gas temperature is 500 deg. Fahr. as determined during the test and the CO_2 content of the flue gases is 5 per cent. Then entering the graph at point A, it is learned that the total stack loss is 30 per cent. This 30 per cent loss includes both the dry and the wet losses discussed above.

Specific Problem Worked Out

Now let us return to the specific problem which was begun in the last issue, and complete the heat balance for the particular set of data presented. It was determined by calculation that the efficiency was approximately 79 per cent, with a CO_2 content of 12.0 per cent and a stack temperature of 415 deg. Fahr. The carbon monoxide content of the flue gases is 0.3 per cent and it can be established by computation that this represents only about 1.1 per cent heat loss due to incomplete combustion.

Now in order to determine the magnitude of the large loss, being the heat which passes up the stack, let us again consider Fig. 1. In this figure at point "B" it is seen that the total stack loss corresponding to 415 deg. Fahr. exit temperature and 12.0 per cent CO_2 is ap-

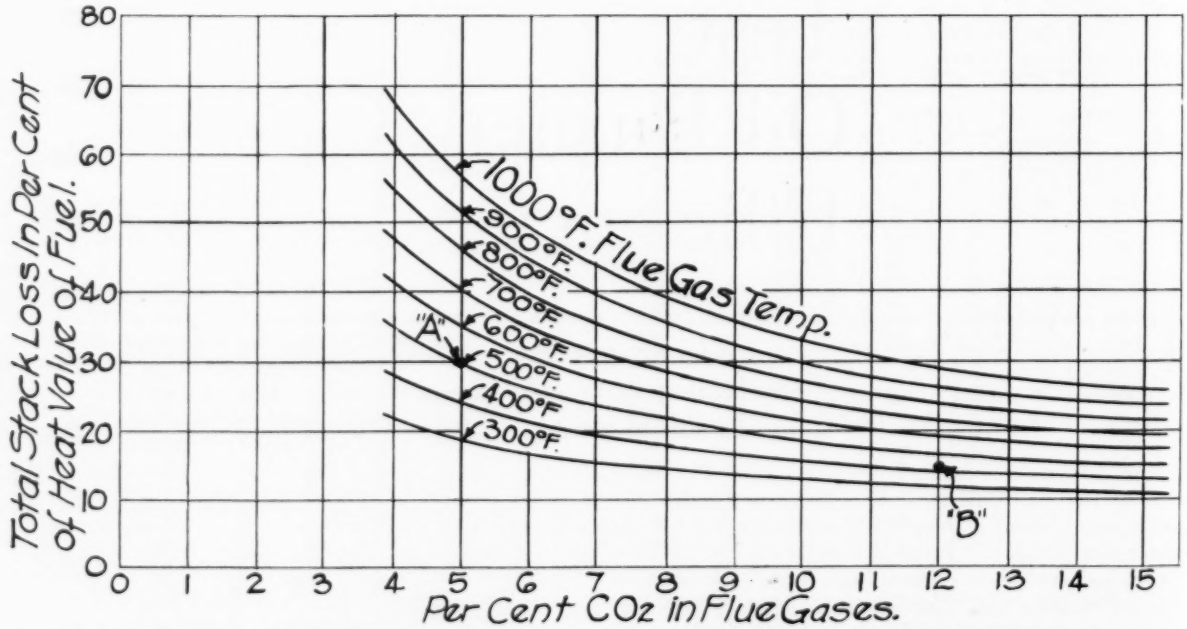


Fig. 1—In this graph, the total stack loss in per cent of heat value of the fuel is represented in terms of the flue gas temperature and in terms of the per cent of carbon dioxide or CO_2 in the flue gases

proximately 15 per cent. Then if we add this stack loss to the efficiency and the loss due to incomplete combustion we have 79 plus 15 plus 1.1, which equals 95.1 per cent. This value represents the amount of heat which has been accounted for. It is customary to subtract this known value from 100 per cent in order to arrive at a figure which represents the total per cent of unaccounted-for heat, including the radiation loss. If this sum of the radiation and unaccounted for loss is not too great we can assume that the test has been conducted with reasonable accuracy and the analysis of the products of combustion has been sufficiently complete.

It is all too common to determine only a limited picture of the operation of a burner in a given boiler. Often we see recorded a single test—representing performance under the most limited set of conditions. While we are of course generally primarily interested in the performance of the boiler and burner at rated output or at the best adjustment as to relation of air and fuel, to acquire a more intelligent picture of the performance at least several tests should be conducted.

Explanation of Curves

In order to study the performance of a certain burner in a small round boiler let us consider the curves presented in Figure 2. These curves represent clearly the operation of the burner over a wide variation in fuel rate as well as with at least two percentages of excess air. The two upper curves in Fig. 2 represent the efficiency of operation for the burner over a range of fuel consumption from about 8 lb. per hour to 15 lb. per hour; the upper of the two curves being the performance with about 20 per cent excess air and the lower of the efficiency curves represent the performance over a broad fuel rate range with about 50 per cent excess air.

The two middle curves, designated as flue gas temperature curves, show the variation in stack temperature when the amount of fuel burned per hour, as well as the excess air also, is altered. The upper curve in this instance is the curve of greater excess air percentage, namely, 50 per cent, while the lower curve represents the exit temperature of the flue gases from the boiler when the excess air is only about 20 per cent.

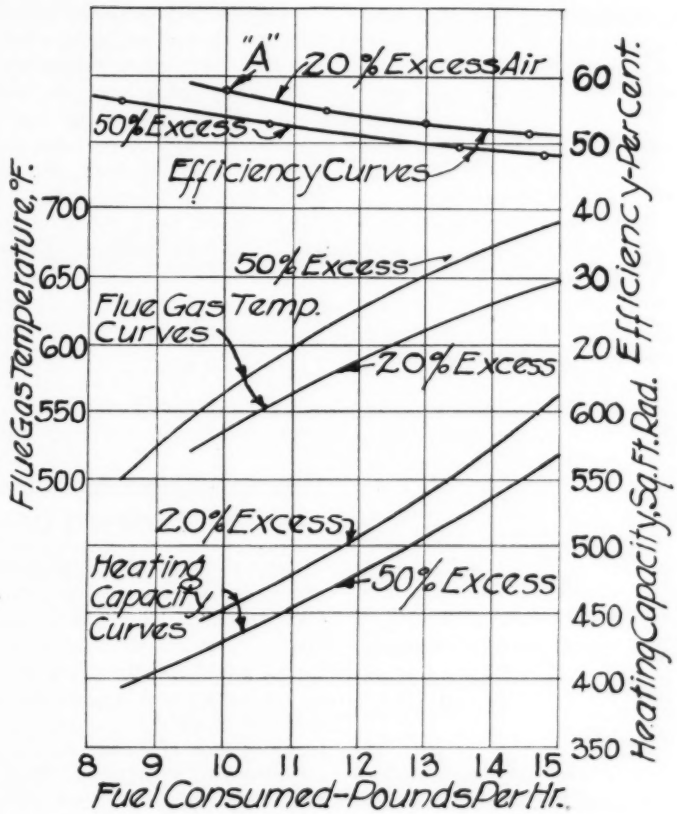


Fig. 2—These curves represent clearly the operation of the burner over a wide variation in fuel rate as well as with at least two percentages of excess air

The two lowermost curves represent the heating effect of the burner and boiler combination over a range of fuel consumption and again with the two excess air percentages of 20 per cent and 50 per cent respectively. The heating effect is given in terms of square feet of standing steam radiation which the burner can take care of.

How Curves Are Obtained

It is interesting to note the manner in which these curves of complete performance are obtained. The small

circles on the two efficiency curves represent the test points. For example, on the upper efficiency curve there are points at 10, 11.5, 13 and 14.5 pounds of oil per hour. Similarly on the lower efficiency curve there are points representing the performance at 8.5, 10.5, 13.5 and 14.8 pounds of oil per hour. The method of determining the performance at each point is identically the same as that given in the preceding discussion. The flue gas temperatures require no additional explanation, since these values are recorded during the test and the values presented are merely averages of those recorded values.

The heating capacity curves perhaps require some little explanation. The method of arriving at these values can best be demonstrated by a simple illustration. Take for example the operation of the burner when consuming 10 pounds of oil per hour with twenty per cent excess air. From the efficiency curve at point "A" it is learned that the efficiency of operation for the conditions specified is approximately 58 per cent. Assuming a heat value of the fuel as 19,750 Btu. per pound, the total useful heat transmitted to the radiation in the house is $10 \times 19{,}750 \times .58$ equal 115,000 Btu. Now since each square foot of steam radiation requires about 250 Btu. per hour, it follows that the heating capacity of this boiler and burner when 10 pounds of fuel are being consumed with 20 per cent excess air is equal to 115,000 divided by 250 or approximately 460 square feet of direct steam radiation. Incidentally while on the subject of heating capacity it is well for the busy, practical man to carry in mind the fact that for every 300 square feet of direct standing steam radiation we should allow one gallon of oil burner capacity and similarly for each 500 square feet of water radiation we should also allow one gallon capacity. The method of arriving at these constants has just been explained in the derivation of the heating capacity curves of Figure 2.

Fuel Consumption Effect on Burner Performance

Let us again consider Fig. 2, and learn the effect on burner performance of varying the amount of fuel burned per hour or varying the amount of excess air which is supplied when this fuel is consumed. Consider first the efficiency. Note that as the amount of fuel burned per hour increases the efficiency falls off. Specifically, at 10 pounds consumption the efficiency is 58 per cent, whereas when the consumption is increased to 15 pounds per hour, the efficiency falls to 51 per cent; this falling off in performance takes place even when the excess air is maintained constant at 20 per cent. This fact indicates the necessity for limiting the size of flame in a given job—never deliver any more oil than is absolutely essential, because, as shown by Fig. 2, the efficiency suffers when the amount of oil consumed is increased. The lower of the two efficiency curves shows the parallel performance of the burner when the excess air is increased to 50 per cent. This curve is of the same general form as the higher curve, revealing the same falling off in efficiency as the quantity of oil burned is increased. In addition this lower curve also shows the loss in efficiency suffered when the excess air is increased. Consider, for example, the performance at 10 pounds per hour. With 20 per cent excess air the efficiency is 58 per cent, whereas with the same amount of oil burned, but with 50 per cent excess air, the efficiency falls to 54 per cent. If the excess air is increased to as much as 100 per cent, as frequently is the case in practice, the efficiency would probably fall to about 40 per cent. This matter of excess air is of major importance.

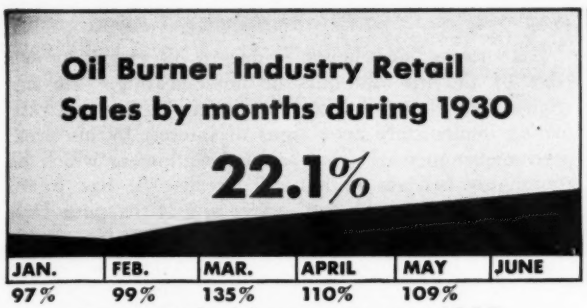
Change of Fuel Rate and Excess Air Effect on Stack Temperature

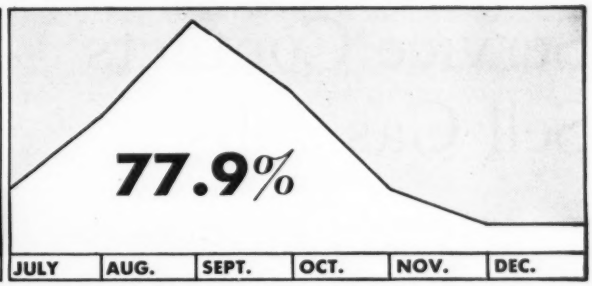
Next let us investigate the effects of change of fuel rate and excess air upon stack temperature. In this case the upper curve represents the less favorable performance. Note how the stack temperature climbs steeply as the amount of fuel consumed is increased. Specifically, with 50 per cent excess air, and a fuel rate of 8.5 pounds per hour, the stack temperature is 500 deg. Fahr. When the rate is increased to 15 pounds per hour, the stack temperature has risen to 690 deg. Fahr. Again, however, performance is improved by reducing the excess air. Consider the performance as depicted by the lower of the stack temperature curves. At 10 pounds per hour the stack temperature is only 530 deg. Fahr., while at 15 pounds per hour the temperature is only 650 deg. Fahr. Again, as pointed out above, if the excess air is as high as 100 per cent the stack temperature could easily rise away out of bounds.

Heating Capacity Curves Demonstrate Burner Performance

After all is said and done, perhaps the heating capacity curves demonstrate the performance of the burner most vividly, because the heating capacity as indicated above really represents the load which the burner can carry. Let us investigate the effect of excess air on the capacity of the burner and boiler under consideration. Suppose that the attached radiation load is 450 square feet, how many pounds of oil are required per hour with the two conditions of operation? With 20 per cent excess air only 10 pounds of oil are required, whereas when the excess air is increased to 50 per cent, the requirement becomes 11 pounds per hour, indicating that 10 per cent more fuel is required to do a given job when the excess air is introduced. Similarly, suppose that the fuel rate has been fixed at 1.5 gallons per hour, and the excess air is being adjusted for performance, let us determine what effect this procedure has on capacity. One and a half gallons is equivalent to approximately 10.5 pounds of fuel, since there are approximately 7 pounds to the gallon of ordinary domestic distillate fuel. Entering the heating capacity curve at a fuel rate of 10.5 pounds per hour, it is seen that with 20 per cent excess air, the burner and boiler have a heating capacity of approximately 465 sq. ft., whereas when the excess air is increased to 50 per cent, the heating capacity drops to approximately 440 sq. ft.

As stated above, the excess air in no case is high in the tests reported; however, in practice the air admitted can readily be several times that discussed here. If such be the case, the falling off in performance will be so great as to seriously affect the economy.





91 MEN

will be glad they read this ad

The world's largest oil heating organization has an opening in 91 good towns like Worcester, Mass., Westfield, N. Y., Frankfort, Ky., Newton, Ia., and Colorado Springs.

THE outstanding success of Petro-Nokol since August 1st, 1930, casts no reflections on other makes of oil burners that have been unable to keep pace. It would be unfair to compare our success with theirs because of the tremendous advantages our dealers enjoy.

100% of the market is theirs . . . with domestic, commercial and industrial burners retailing from $295 for cottages, up to $55,000 for the world's largest buildings. Where no gas is available . . . they have electric ignition. Where oil is inferior . . . they have burners that will use it. To perfectly fit any type of boiler, they have a choice of rotary, pressure and air-driven cup types. For the new home and replacement market they have a beautiful combination boiler for either gas or oil. With the burner unit completely concealed inside the cabinet, as service-free and automatic as the most modern refrigerator. In many sections of the country, they can even supply our own oil, in our own trucks from our own oil terminals.

The very magnitude of this scope enables us to operate on a smaller margin of profit on each product. As a result, we have brought economical oil heat within reach of the public at large with prices as low as $295.

Two years ago, we were deeply engrossed in a merger of the organizations of the two pioneers in this industry. We had to take time out, temporarily. Others overtook us, also temporarily. But 4 years ago we anticipated the need for a stabilization of prices. All of our research and engineering skill was directed to that end.

When the depression hit this country . . . it proved our opportunity. For the past 10 successive months, we have maintained a pace unequalled in this industry. Some of the best dealers . . . a permanent part of our organization . . . helped us make this record. Now new towns are being added and adjustments being made in others.

When the whole industry declined about 25%, Petro-Nokol showed an increase of 110%. From July 1st to the end of the year, 77.9% of the oil burner business will be done. So the best season is still ahead of our dealers. This is the opportunity that awaits a live, aggressive organization in each of the 91 good towns that we are closing right now . . . this summer.

Send the coupon today for the good news about the town in which you are interested. It may be one of the 91.

Petroleum Heat & Power Co. D.E.-8-8
Stamford, Conn.

Please advise us at once if our town is on the Opportunity List.

Name.....

Street Address.....

Town..... State.....

Service Contacts Sell Gas Jobs

15% of the sales in his city made by this contractor

THE records of the Denver Gas utility shows that of the home gas heating appliance sales that have been made in the city over a period of three years, seven hundred of these installations are revealed as those of heating contractors. Records disclose that one contractor has secured the overwhelming percentage of 104 of these installations.

Difficulties of Competition

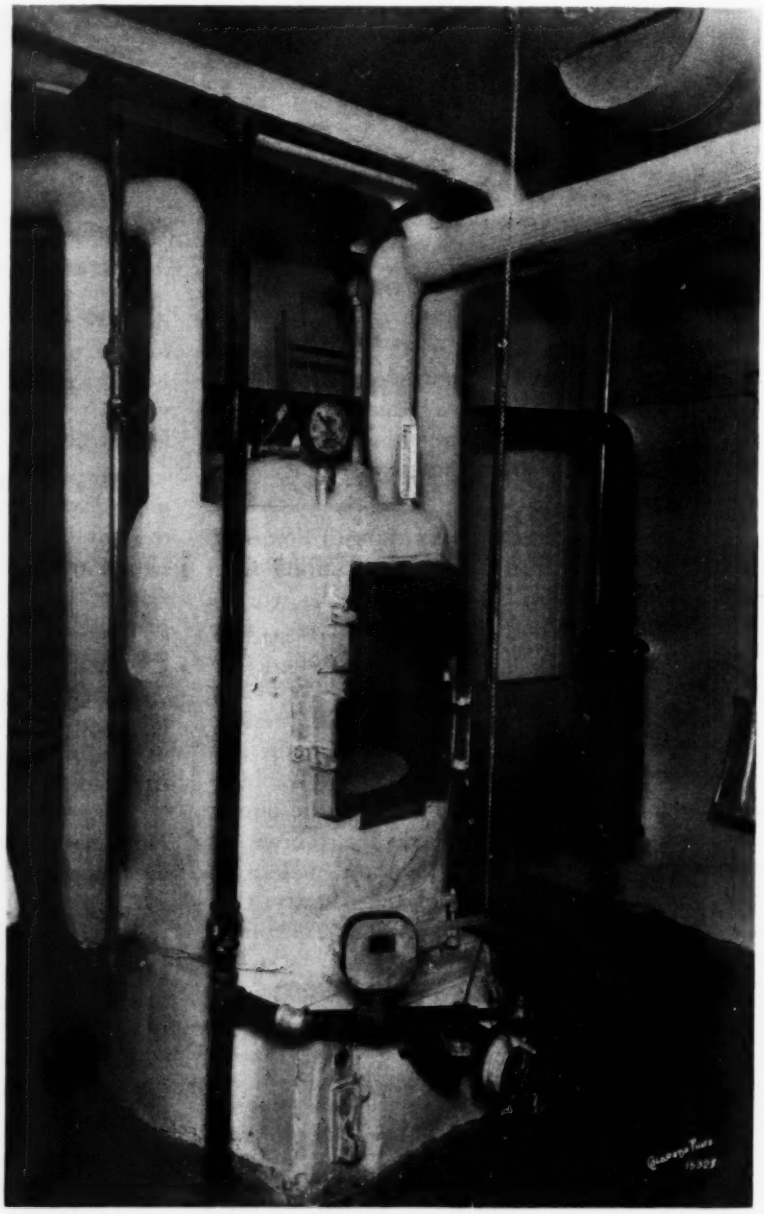
This is W. E. Wallace, of 1043 So. Gaylord, heating contractor, who, because of his ability as estimator, salesman and expert, all in one, has been able to profit to the extent of approximately 15 per cent of the total number of installations made.

"Of the several reasons for existing circumstances, only one provides a real stumbling-block for contractors here in Denver who wish to sell home-heating appliances," says Mr. Wallace. "That one is the fact that we are unable to extend the privilege of payment over a long period of time. Other competitive factors it is possible to surmount."

Mr. Wallace does not make house-to-house canvasses, but depends entirely upon other plumbing and heating jobs which come to him for the location of prospects.

His success, he believes, is due to his expert knowledge of the ins and outs of home-heating. He has studied his subject and is competent to do his own estimating immediately upon signs of interest by his prospective customer. He has selected equipment which he thoroughly believes in himself, because he has found that it will give unexcelled service and at the same time not consume an excessive amount of gas. He also is cognizant at all times of his overhead expenses, and his costs, so that there is no guess-work when it comes to adding a sufficient amount to make a profit.

Mr. Wallace gives the kind of service that need not be mentioned in his sales talk, unless the customer asks for information regarding the "free" service offered by some one else.



Here is a Wallace installation in a Denver home

"Out of the 104 installations I have made, there have been only two or three complaints," says Mr. Wallace, "and each time it was about the size of the customer's gas bill. I called and explained just why these houses would require that much gas on account of the construction, and in each case, the customer was satisfied.

IT has been pointed out many times that the plumbing and heating contractor has an immense advantage in the fact that he is called into the home. "I am inside," says this contractor, "and the battle is already won," in contrasting that situation with the problems of the house-to-house salesman. As a result of capitalizing his service contacts, he has sold a good portion of the gas heating jobs in his city

He Capitalizes His Contacts

"Suggestion selling, that's all it is. I take advantage of the fact that I am welcome at the door! I have either contacted a prospect for repair work, or have been called. Anyhow, I am greeted by an open door—I am wanted, and needed; whereas the house-to-house salesman must ring the front door bell, and more often than not, meet with a rebuff, 'I'm not interested.'

"I am inside, and half the battle is already won if there happens to be a prospect here for a heating appliance. When I find myself in a home where I think a gas heating appliance should, and could, be bought—that is, where there appears to be enough income to warrant such a purchase—I make my opening suggestion by remarking, 'If this were my home, I would do thus and so.' I immediately put myself into the shoes of the owner. I look at the house, and estimate the heating units, the necessary changes of air, etc., exactly as I would if I were to have to pay the bill.

"Of course it is essential, first of all, to be convincing in a sales talk. I must be absolutely sold on my own merchandise.

"I know my overhead to be 17%. I have been content to figure 22% net profit—and on the first call, the call for repair service on some plumbing, I can compute exactly what the complete installation will cost the customer. I do not have to make measurements and make

Mr. Wallace watches estimates carefully

AUTOMATIC HEAT

Steady Water Level
Dry Steam
Steady Output

Study the specifications of any JOHNSTON BOILER. Compare general dimensions with other boilers. Compare ratings. You will discover that Johnston dimensions in proportion to ratings are generously large in comparison with others of equal rating.

Dry steam, steady water level, and steady output are assured. Johnston Boilers are indeed superior in many respects. Have you the latest steel heating boiler catalog by JOHNSTON? Send for it today.

Johnston Brothers, Inc.
Ferrysburg, Michigan
Box 372

JOHNSTON BOILERS

BOILER BUILDERS for 65 YEARS

estimates later, necessitating a second call to let the customer know the price.

"Now, in order to be able to accomplish selling, in spite of the heavy competition, it is necessary that a contractor be also, a business man. Plumbing and heating contractors are not generally trained in business. I wasn't. And so I have had to study.

"The heating trade papers are invaluable, and those pertaining to the field of my competitors also. I take a lot of them, and devour their contents.

An Ace in the Hole

"Once having located a prospect; estimated a home carefully; made an attractive cash offer; and put forth my best efforts in a straight salesmanship talk on the quality of the appliance and my own work; there is still an 'ace in the hole' if the prospect does not buy.

"I refer him to one of my customers who has had the appliance long enough to know he is satisfied. And in every case where I have done this, the old customer has cinched the sale for me!

"The fact that a plumber in Denver can actually make a better cash offer than the public utility and still make a net profit of 22%, holds little weight in face of their long payment plan. On a few occasions I have sold on a down-payment-and-so-much-a-month-plan, turning over the papers to a finance company, but this plan is not very profitable."

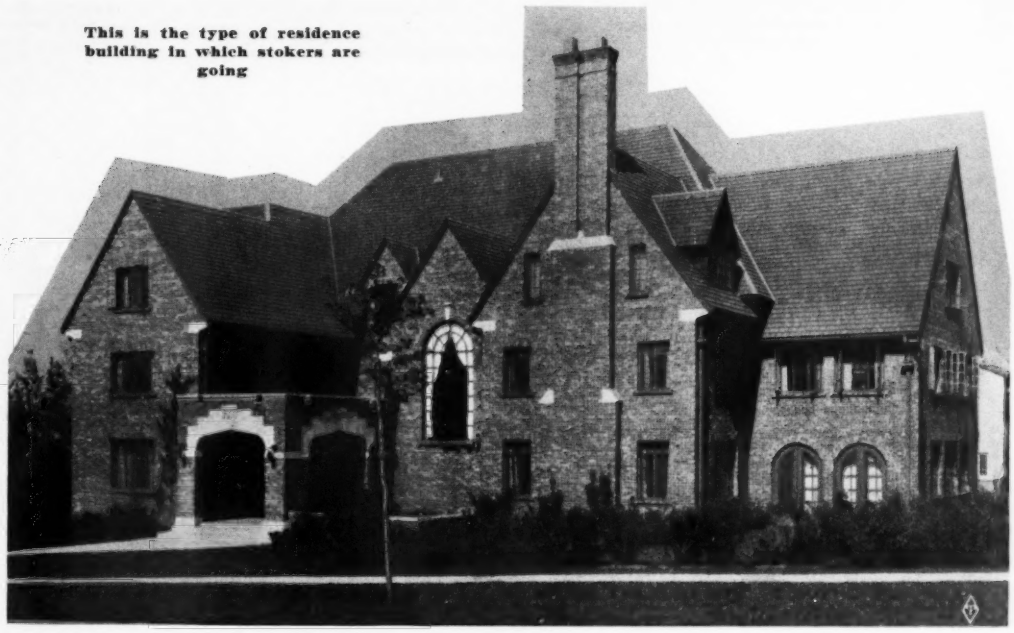
The Value of Cleanliness

One of Mr. Wallace's pet hobbies is the absence of overalls when plumbing. An ordinary, clean business suit, and blue shirt, will give a plumber a better chance to become a salesman when the lady of the house is approached.

"And I never leave any mess behind me, no matter how insistent a customer may be that I leave the dirt, she will clean it up. She may be anxious to be rid of me, perhaps she really would not mind cleaning up. But the chances are that the circumstances would be forgotten sooner or later and someone would hear about how I left behind me a mess that had to be cleaned by the housekeeper herself!

"So I take no chances. I take time to clean thoroughly. The lady may be aggravated because I'm not out of the house, but she will forget that, and if she talks about me, she will be sure to say nothing but the best. That is important. Today, I may have made a little sale, but a month or six months, or a year from now she may be in the market for a gas-conversion. I have mentioned my line to her. She remembers and calls me up for an estimate. Or, a friend of hers is considering installing a gas heater—she mentions my name, and the chances are, a contract results.

"It may be possible for a plumbing and heating contractor to meet public utility competition in gas heating by house-to-house canvassing, but my experience has shown that the service contacts, based on giving good service, are satisfactorily productive of such business. I don't mean gas heating contracts will fall into every good contractor's lap, but a keen eye for possible prospects, a thorough knowledge of gas heating, ability to estimate accurately and quickly, a heating unit one can be proud to boost, and a carefully thought-out sales talk, will direct many contracts his way."



This is the type of residence building in which stokers are going

"Sell the Investment"

are the instructions to the salesmen of this contractor when talking Automatic Heat

"SELL the investment!"

The City Plumbing & Heating Co. of Boulder, Colo., sold 143 stokers last year on this basis. Salesmen were asked to forget that they were selling stokers and to approach the customer on the investment phase of automatic heat, even temperatures, and convenience of operation.

The company operates in northern Colorado and eastern Wyoming. It has two sub-agencies, one at Fort Collins, Colo., and one at Cheyenne. Both, however, are merely service agencies, their main purpose being to give the company a tieup with a reputable firm in each of the two localities. Salesmen work out of the main office at Boulder, occàsionally picking up a chance lead from the sub-agents but for the main part operating independently of them.

"Selling the investment? Why, we all do that," says the stoker salesman. "What's new about that method?" Simply that the City Plumbing & Heating Co. does not divide the prospect's interest by talking the convenience of automatic heat or the stoker idea in heating.

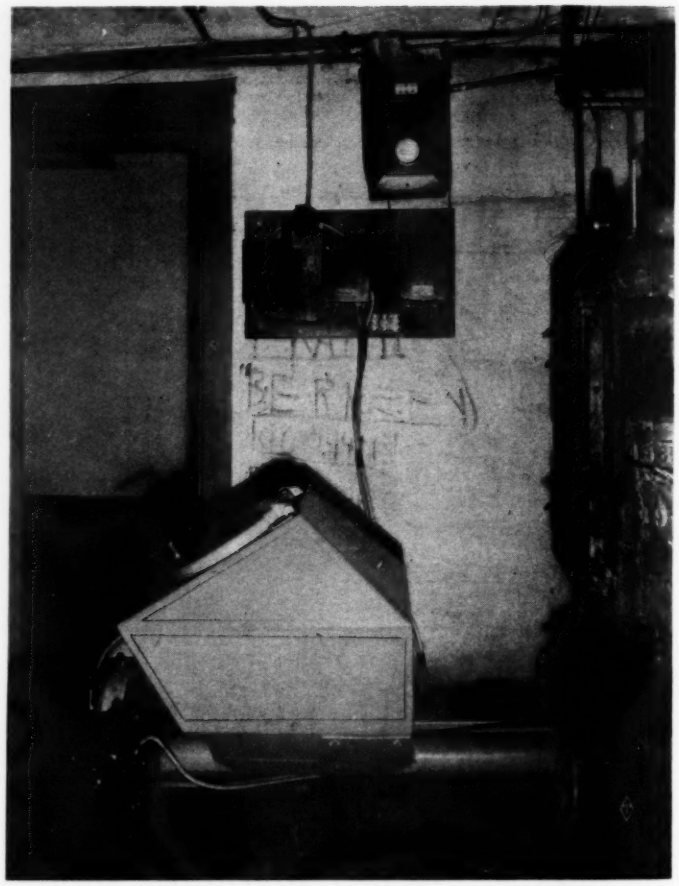
Fully 50 per cent of the stokers sold are bought by district school boards. Here is how the salesman goes about it as related by S. W. Alford, the company's manager of stoker sales:

"He first approaches the director of the local school board—usually a farmer at work in the field. 'A stoker?' echoes the latter in amusement. 'You tell me how such a miracle can be arranged with our heating budget down to $1000 and our coal bill never under it even with the most rigid economy.' 'You write that in one check, don't you?' asks the salesman. 'It wouldn't make any difference to you if you were to write two checks for $500 instead of one for $1,000, would it?' 'What are you driving at?' inquires the prospect. 'Simply this,' the stoker representative informs him, 'you can have a stoker at your school and keep your heating budget to the old figure for this year and next. After that you can cut it to $500. You'll have your stoker paid for by then. Meanwhile your coal bill will be $500 a year. You can pay for your stoker with the other $500 you save for the next two years.' 'Sounds like a real proposition. I'll get the board together this evening if you'll come down and tell them about that plan.'"

Two Calls to a Sale

"We averaged two calls to 75 per cent of our sales last year," says Mr. Alford. "The plan of spacing the payments to correspond with the savings made on coal bills was an unanswerable argument. We made 75 per cent of the school board sales at the first meeting.

"Our first step is always to have the prospect produce his coal bills. Then we figure his payments from what he can save. We keep to the subject of savings entirely. If the prospect insists on knowing what the stoker costs and wants to talk price we give him to understand it



Down in the basement with a City Plumbing and Heating installation in Boulder

largely depends on what his coal bills are. If we can get him to produce his bills we can usually sell him. But if he asks, 'What is this stoker going to cost me?' and you tell him, the figure is going to frighten him out of buying in many cases. But even then it is possible sometimes to recover a lost opportunity. We had a case in point at a Cheyenne packing plant a few months ago. The manager refused to show us his coal bills, said it wasn't any use, his argument being that stokers were 20 per cent higher than they should be. 'I grant that, Mr. Baker,' I said, 'and the reduction will come within the next year.' 'I'll consider one then,' he said. 'But in the meantime,' I replied, 'you'll have lost the benefit of that 20 per cent reduction by having 50 per cent higher fuel bill this year than you should have. Do you realize that you're paying for this stoker whether you buy it or not?' Reviewing it in this light he was convinced and signed up on the first call."

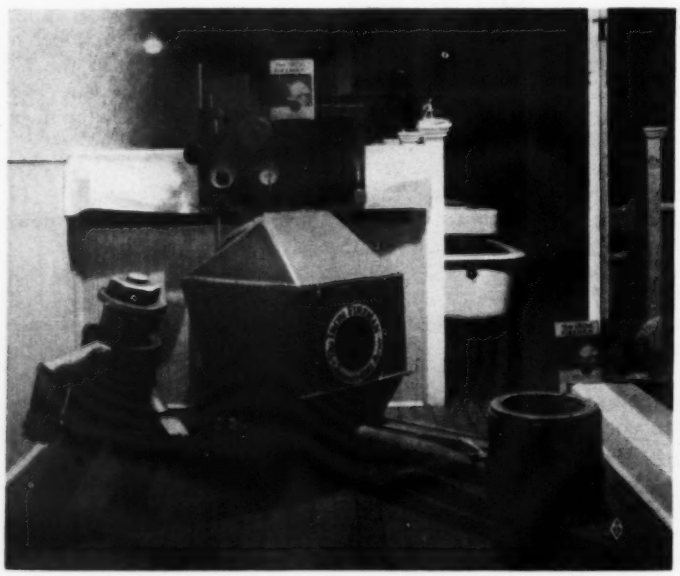
Twelve-Prospects-Two-Calls Plan

After the third call a prospect is no longer such, measured by City Plumbing & Heating Co. policies. Each salesman works on twelve prospects at a time. He makes two calls on each of these. Those he doesn't sell on the first two calls he discards for the time being and starts to work on twelve new prospects. He operates this way the year round, starting on new prospects only when he has finished with the old. Mr. Alford has introduced the plan in order that sales work may be done systematically and no prospect given up for a new one before he has been approached twice.

In figuring savings the plan used is show the prospect that 25 per cent is saved on net tonnage with a stoker and from 25 to 50 per cent on the cheaper grade of coal that may be used to secure the same amount of heat as with the higher-priced coal hand-fired.

"Where gas is used for fuel," says Mr. Alford, "we have had our greatest success. We are able to show that fuel bills can be reduced to 25 per cent. On the big industrial jobs the problem, from the prospect's point of view, is to show him how he can junk hundreds or thousands of dollars' worth of gas equipment and save money. The administrator of a hospital in the territory recently had $15,000 tied up in gas appliances and a yearly fuel bill of $5200. We put him down for a $2000 stoker. He couldn't see it. 'Who is going to pay for all this expensive gas equipment,' he asked. 'Junk it,' we told him. 'Your first year's saving on fuel pays for the stoker and a little to spare. In five years you'll have the loss on the junked equipment wiped out. In the meantime you have automatic heat, safer heat.' The job is in."

When a prospect is skeptical about the 50 per cent saving which the firm guarantees



A good use of manufacturer's window helps

A view of the store that is headquarters for stoker sales

permission is asked to install a stoker on a 30 day trial. The company has never had to take one out yet.

Free Service Once Yearly

Once a year a company service man makes the round of the jobs sold, drains the gear case on each, paints the boiler front, and makes a general checkup. This service is given without charge and figures as one of the incidentals of the sales talk.

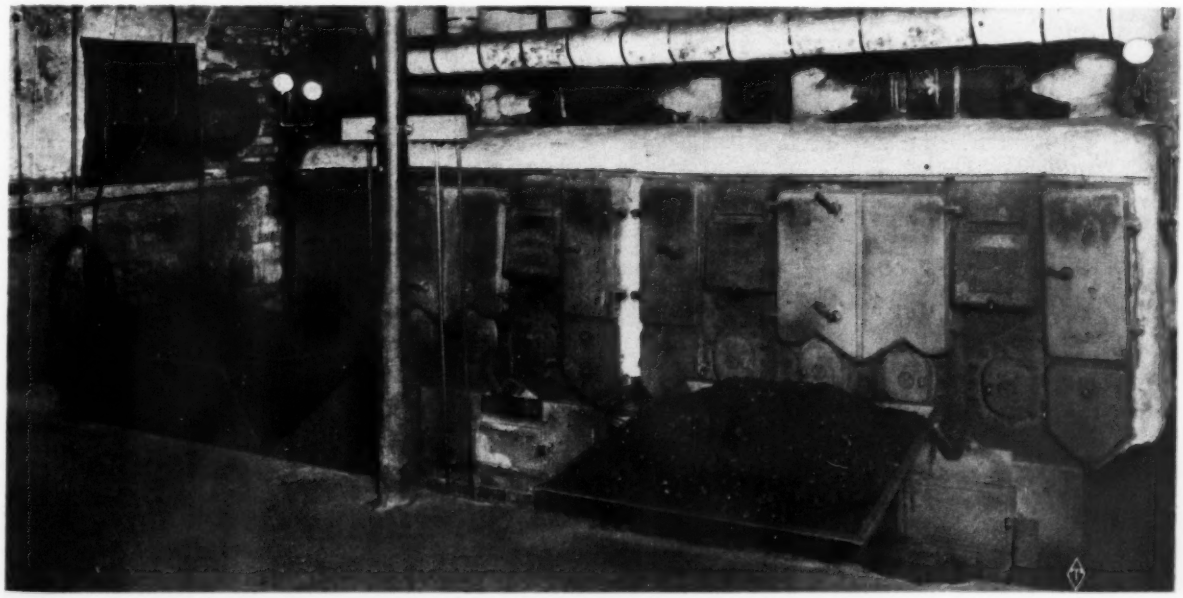
In Boulder, the little university town in which the company is located, there are 76 stokers now in use. The City Plumbing & Heating Co. sold all but one of the jobs.

Heretofore the company has done its heaviest sales work on rural school installations. This year fraternity houses are a big item in solicitation. An eight-months payment plan is used—three years to pay—eight payments a year. This arrangement is made because of the fact that the students are away three months of the year. Fraternity jobs are figured as industrial sales by the company. All payments on industrial jobs are kept under three years. The domestic customer is given as high as five years to pay.

No competitive points of the stoker are taken up on the first call made on a prospect. The investment is not only emphasized but constitutes the sole argument. However, if a second call is necessary competitive points are brought out.

Prospects are secured in various ways. With one or two exceptions every Ford dealer in the territory worked so far has been sold. Mr. Alford happened upon the information that the Ford assembly plant in Denver which installed the stokers more than a year ago had made known that a saving of several thousand dollars had been made on fuel bills. With this testimony Mr. Alford and his sales force called on every dealer in the district. Because of their admiration for Ford methods of economy the dealers proved good prospects.

When a prospect fails to "get" the investment argument Mr. Alford has a little illustration he uses effectively. He asks the prospect if he has a 25-cent piece in his pocket. "Let me see it," he says. When his prospect hands it over Mr. Alford hands him a dollar. "That's the kind of an investment you make when you put in a stoker," he says. Sometimes he gets the dollar back and sometimes not. But he usually sells a stoker.



One of the company's larger stoker installations

Insulation Reduces Cost of Automatic Heat

One of the most common of all heating problems is that of heating properly the upper story of either a residence or an apartment house

When automatic fuels of the more expensive type such as oil and gas are used, thought must be given to the house construction if costs are to be kept within reason. Even with cheaper fuels, it must be considered if complete comfort is to be enjoyed by the owner. The extent of the building's heat losses determine the type of fuel to be recommended and the heating plant to be installed.

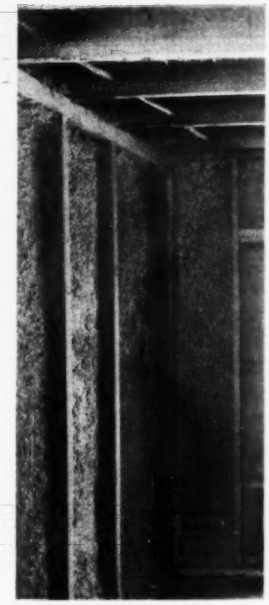
Therefore, it is imperative to cut down these heat losses rather than increase the size of the heating equipment. This is accomplished with insulation and one instance of this is described here.

By H. S. ASHENHURST

THE average heating contractor is not interested in generalities. He wants to know from actual experiences similar to those which he encounters just how insulation may be used to solve his problems. This article is based on such experience.

One of the most common of all heating problems is that which has to do with the inability to heat properly the upper story of either a dwelling or an apartment house. Here is an instance that occurred in a town in the vicinity of Chicago. The tenants complained that it was impossible to keep their second floor living quarters warm in sub-zero weather. A heating contractor was called into consultation by the owner. He looked the job over and found the heating plant functioning properly and delivering efficient service insofar as keeping the radiators to the proper temperature was concerned. Therefore, the opinion was given that the difficulty was caused by insufficient radiation, and that the way to cure the trouble was to add a considerable amount of radiating surface to heat the air in the rooms, which meant larger radiators. After explaining the situation to the owner, it was agreed that the extra radiation should be installed. The radiators were sent to the job, and the plans for their installation went ahead. Then a new problem arose. There was some question as to whether the boiler could carry the extra load of radiation in very cold weather, and it was decided that it might be necessary to add a larger boiler. From this description, which is typical of many jobs, the reader can see that it carried many complications. The old radiators had to be taken out and new ones installed, which cost money, the residents of the apartment had to be inconvenienced, and when the contemplated work of additional radiation was finished the owner might have to go to the additional expense of a new boiler, which meant more inconvenience.

Before the work was started the writer was called into consultation. The entire situation was covered, the heat loss through the ceiling with and without insulation, was figured, the amount of radiation in place was taken into consideration, and then a suggestion was made to the owner and the contractor. The suggestion was that if the space between the ceiling joists on top of the lath and plaster were insulated to a depth of 4 in. with some standard insulating material, the rooms on the upper floor would be heated properly with the present heating plant, and no additional radiation or new boiler would be required. Furthermore, it was pointed out that the installation would save fuel costs and make the occupant of the apartment more comfortable during both winter and summer.



In the view above, insulation is shown on the side walls of a frame building

At the right, coefficients are given for heat transmission through lath and plaster ceilings, with and without fill insulation of various thicknesses. The data contained in these sketches was compiled by the Illinois Master Plumbers Association and is taken from their "Special Bulletin"

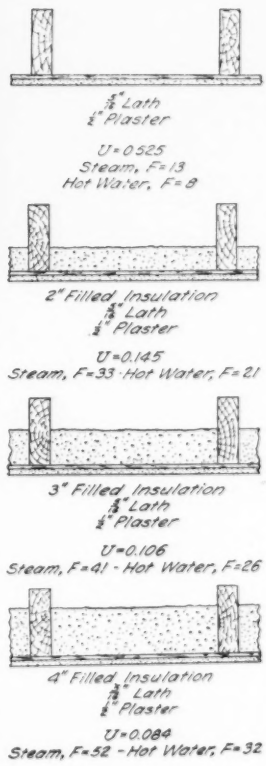
This conclusion was arrived at through taking the heat loss for a plain lath-and-plaster ceiling and comparing this loss with what would occur with various thicknesses of fill insulation applied on top of the lath and plaster between the joists. By "fill" insulation is meant the various rock wools, cellular gypsum or powdered gypsum. A plain lath-and-plaster ceiling has a heat transmission co-efficient of 0.525 per sq. ft. per degree difference in temperature and, assuming that the space above ceiling was approximately 40 deg. Fahr., in zero weather and that the ceiling temperature in the room would be around 80 deg. Fahr. when 70 deg. Fahr. was attained at the breathing line, the temperature difference is seen to be

80 — 40 or 40 deg.

This multiplied by the co-efficient of 0.525 gives a loss per sq. ft. of 21 Btu.

With 2 in. of fill insulation the co-efficient drops to 0.145 giving a loss per sq. ft. of 5.8 Btu, with 3 in. of fill insulation it drops to 0.106 giving 4.2 Btu, per sq. ft., and with 4 in. of fill insulation—as recommended—it drops to 0.084 giving a transmission of 3.4 Btu. per sq. ft.

Taking a 10 ft. x 12 ft. room for example, the ceiling area is 120 sq. ft.; with the ordinary ceiling the loss would be



120 x 21 or 2520 Btu.

but after 4 in. of insulation has been added the loss will be

120 x 3.4 Btu. or 408 Btu.

and the amount of heat saved would amount to

2520 Btu.—408 Btu. or 2112 Btu.

which, divided by 240 Btu. is equivalent to adding 9 sq. ft. of radiation. Assuming that this room ordinarily would have a radiator of about 40 sq. ft. surface it will be seen that this is equivalent to adding.

9/40 or 22½ per cent of the existing heating surface.

The suggestion was carried out at once. No one was inconvenienced. The occupants were more comfortable than they had ever been before, and the old heating plant was operated with greater efficiency because it did not have so heavy a load to carry in severe weather. The new radiators were taken from the building and used on another job.

When a heating contractor goes out on a job, he may approach the owner with the knowledge that behind him is a great amount of scientific practice and data. This will enable him to figure accurately heat losses and thus eliminate all guessing hazards. If the changes are properly designed and estimated, as in the above case, owner satisfaction and comfort may be assured. Results may be predicted accurately.

Here is a view showing fill insulation installed between the ceiling joists over the lath and plaster

The Age of Hand Firing, Like the Age of Hand-Wound Clocks, Is Passing

JUST a few years ago, electric clocks for the average home were unheard of. Today, they are big sellers.

Just a few years ago, automatic heat for the average home was prohibitive because of cost. Today, it is becoming standard equipment for even the most modest homes.

A few years more and hand firing will be as obsolete as horse cars and parlor stoves.

The public wants automatic heat, whether it be oil, coal or gas, and it will get it.

It will get it from you, the foremost automatic heat dealer serving the American public today.

It will want your knowledge of heating, fuels and combustion. It will demand the benefit of your experience in the purchase of oil burners, gas heating equipment, stokers and all their accessories.

Most of you are prepared to help in creating this demand and selling it after it has been brought to its height.

Some more of you want more information on automatic heat. You'll get it in these pages in every issue of DOMESTIC ENGINEERING.

And we invite your inquiries as to the best type and make of automatic heat for you to sell in your community. Write us for advice. Read AUTOMATIC HEAT.

AUTOMATIC HEAT

in

Domestic Engineering

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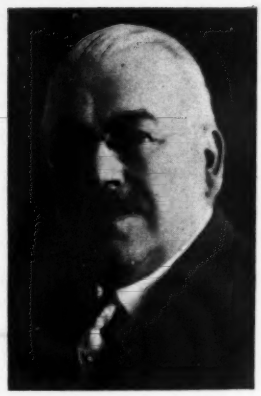


Guilford R. Adams

A Half Century of Plumbing Supplies 1881-1931

A Letter to the Editor

By GUILFORD R. ADAMS, of Samuel Sloan & Co., Rochester, N. Y.

FIFTY years is a long time to look forward to but it does not seem that long since July 5, 1881, when I entered the employ of Samuel Sloan, then engaged in retail plumbing, steam and gas-fitting.

Many changes have occurred in this business since then as well as the character of the goods furnished.

From 1860 to 1880, our firm was known as Sherlock and Sloan, and enjoyed a large business not only in Rochester but throughout Western New York. In 1880, after the death of Mr. Sherlock, the business was continued under the name of Samuel Sloan.

In 1889 our plumbing foreman, William T. Fox, took over the plumbing end of the business, our old employes in this department going with him. In 1891 we discontinued the steam-fitting department and embarked in the wholesale business exclusively.

On January 1, 1896, Mr. Sloan's son, William E. Sloan, and Guilford R. Adams were admitted to partnership, making the firm as it stands today—Samuel Sloan and Company.

In September, 1903, the senior member of the firm, Samuel Sloan, was stricken with heart disease while seated at his desk. Soon after this, Daniel L. VanHee, who for a number of years had been in charge of the office and credits, was added to the firm and in 1925, William E. Sloan, Jr., one of the third generation of the Sloan family, was admitted to partnership.

So, I am celebrating fifty years in plumbing supplies; forty years in the wholesale business and thirty-five years as a partner in the firm of Samuel Sloan and Company.

Many of our salesmen and other employes have grown up with the business, ranging from thirty-three to twenty-five years of service. Their loyal support has added much to the success of the business, their long experience a great aid to efficiency.

Over eight years ago, one of my best friends, Philip M. Beecher, joined the Sloan organization as sales manager, a position he has held ever since. His long years of experience both as jobber and also manufacturer, together with his untiring devotion to the details of the business, have endeared him to all.

While for many years I have had charge of the purchasing department, my nephew and assistant, Clinton J. Turner, has relieved me of much of its detail in a most satisfactory manner.

Early in June, 1881, I received a note from Samuel Sloan, whose wife I had met, asking me to call on him as he had a position open that he thought might interest me. I took some time to make a decision but have never regretted my choice.

I have always been interested in association work and attended many conventions each year. In October, 1916, after serving as director and vice president, I was elected president of the Eastern Supply Association and put in two busy years in that office. Nearly every day, one or more communications passed between Secretary Frank Hanley and myself. By wonderful co-operation of secretary, officers, directors and members, seventy-three members were added during my two years in office. This brought the membership from one hundred and eighty-three to two hundred and fifty-six. I was presented with a Tiffany mahogany hall clock when I had completed my term of office.

In 1920, I was elected first vice president of the National Pipe and Supplies Association and a year later was made its president, which office I held for two years. Those, I think, were the two most busy years of my life.

On retiring from office, I was presented with a sterling silver after-dinner coffee set of five pieces from this Association.

Looking backward for fifty years, one remembers the lack of telephone, typewriter and stenographer. I well remember our old letter-press and one of my last duties each afternoon was to prepare the damp blotting sheets and copy the letters and orders that had been written in long hand during the day.

When I hear a plumber say: "I am not in business for my health," he tells but half the story. What he meant to say was: 'I am not in business for my health *alone* but for the health of the entire community in which I live." Somehow to me, next to the preacher and doctor comes in relative position, the plumber. His is the task to make homes safe for the old and the young; his the privilege of furnishing bathrooms with their beautiful colorful fixtures. His the problem of selling his clients the latest and best labor-saving devices for the kitchen.

We should be thankful for having a part in this work as distributors of the material which he installs.

More and more *SERVICE* becomes the trade-mark of the business world. Any success I have made I can attribute to the fact that my work has been a joy rather

CO-OPERATION

Crane branches are more than distributing centers located where they can serve a territory with the greatest convenience and speed. They are, rather, the connecting links between the interests of Crane Co. and the interests of the men who sell and the men who install its materials. As such they are equipped to serve. At them you can always pick up stock materials needed in a hurry to complete a job or make free use of special precision machinery to cut and thread pipe up to twelve inches.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Ninety Cities

VALVES FITTINGS

than a burden; something to look forward to as each day presents new problems to solve.

While most of us have had unexpected worries from loss of business, increasing over-head, etc., the past two years, yet after all it is "A PRETTY GOOD WORLD."

(Signed) Guilford R. Adams.

◆

Mueller Co. Employes Hold Picinc

Employes of the Mueller Co., Decatur, Ill., held their annual picnic on June 27th, at Mueller Heights, for the first time. For many years this event has been held at Fairview, a municipal park. The sameness of the surroundings robbed the picnics of much of the possible enjoyment to be squeezed from an outdoor gathering. The committee therefore decided on a change to the company's beautiful country place, Mueller Heights. The success of the outing fully vindicated the judgment of the committee.

For those who did not have cars, transportation by bus and street cars was provided by the company.

The big crowd did not come until about mid-afternoon. At 5 o'clock there were some 3,000 persons scattered over the grounds. A temperature of 101 degrees made the shade popular and in a measure interrupted several of the athletic events such as the men's tug of war. The big boys who habitually carry around 200 or more pounds of weight found no difficulty in keeping warm sitting quietly in the shade without the strenuous effort of pulling against each other under the blazing sun. Practically all events went through as scheduled beginning with pony rides for the children in the morning and ending with the dance at 11 p. m.

The refreshment stand was the object of continued and combined attacks throughout the afternoon and evening. Ira and Walter Auer of the organization had the refreshment concession again. With 13 assistants, they were kept on the jump. The stand was located at the Employes Club House, which was headquarters for the day.

◆

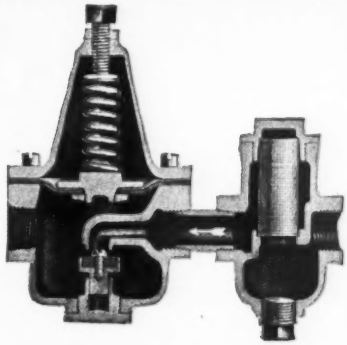
Death of Truman P. Gaylord

Truman P. Gaylord, vice president of the Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., died recently in Shelby, Mich. He was in his 61st year. Mr. Gaylord was born in the town where he died. He was appointed district manager of the Westinghouse company's Chicago office in 1902, the position he occupied until he was made acting vice president in August 1914. He was elected vice president of the company in April 1929.

◆

Appoints Two New Representatives

The General Heat & Power Corp., New York City, has announced the appointment of the Jarvis Engineering Co., 51 Ellery street, South Boston, Mass., as distributor for its line of steam generators in the New England territory. The Combustion Utilities Corp., Inc., 4531 North Broad street, Philadelphia, Pa., has been appointed as the corporation's representative in the Philadelphia district.



Look at this LARGE sediment chamber

No danger of dirt affecting its operation

The Watts Water Pressure Regulator has a larger body and a larger sediment chamber than ordinary makes. Consequently it will hold more sediment without affecting the operation.

But there is no danger of dirt getting into this Regulator when used with a Watts Strainer. The baffle plate in this Strainer makes it impossible for sediment to pile up in front of the screen and cause it to collapse from water pressure.

Sediment can be easily removed from the bottom. The screen can be cleaned without disturbing installation.

Watts Regulator and Strainer are made of bronze and brass, so there is nothing to rust.

Diaphragms in the Regulator are new live rubber and will give years of service. Disc closes against a well-rounded seat, insuring tight shut-off even against a dead end, and will not allow pressure to build up when no water is being used. Diaphragm and disc are up on the ceiling of valve, away from the flow of water and dirt. Watts Regulator is noiseless and retards water hammer.

For trouble-free service, install the Watts. Fully described in Catalog 23, sent free. Just mail the coupon.

WATTS

WATER PRESSURE REGULATOR

WATTS REGULATOR COMPANY

Makers of Water and Steam Regulating Devices Since 1874

249 Lowell Street Lawrence, Mass.

John G. Kelly, Inc., Distributors, 210 East 45th St., New York

W. H. Cunningham & Hill, Ltd., Canadian Distributors, 269 W. Richmond St., Toronto, 2, Canada

WATTS REGULATOR CO.,
249 Lowell St., Lawrence, Mass.

Without any obligation, please send a free copy of your Catalog 23.

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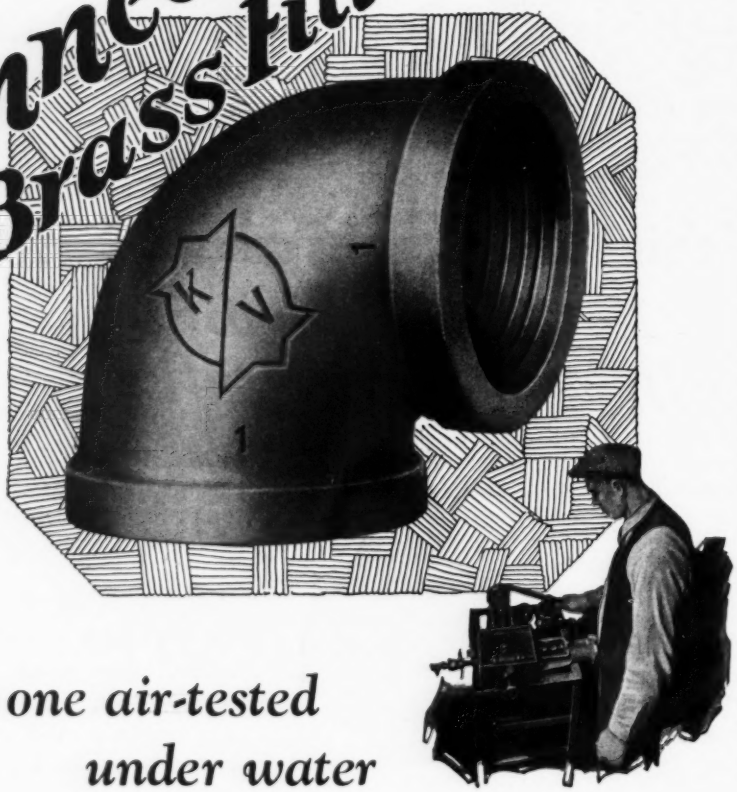
Address.....

City.....State.....

Kennedy Brass Fittings



—each one air-tested under water

MANY thousands of Kennedy Brass Fittings are made every day but not a single one is permitted to leave the factory without an individual test for tightness with air pressure under water.

We find mighty few faulty fittings, but we take no chances, for each Kennedy Brass Fitting must be perfect in every respect.

Besides being leakproof, you can depend on Kennedy Brass Fittings to be made of particularly high grade metal, well designed for both strength and appearance, and accurately machined. These fittings are made of the same tough, strong red metal as used for Kennedy Bronze Valves. They are inspected before and after machining, as well as being hydraulically tested, and our precision machining equipment assures clean-cut accurately aligned threading.

Order Kennedy Bronze Fittings for your next job and you will quickly learn why so many contractors have standardized on them.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.
Branches and Warehouses in Principal Cities

KENNEDY
Valves *and* Fittings
meet every standard requirement on plumbing and heating jobs.

Standard Bronze Gate Valves
One of the large Kennedy line of bronze and iron gate, globe, angle and check valve types for a wide range of pressures.

Malleable Iron Pipe Fittings
Made of truly malleable metal, and have sharp, clean, accurately cut threads with generous chamfer.

Radiator Valves
Built in both hot water and steam types, and designed to follow the standard roughing-in dimensions formally endorsed by the Heating and Piping Contractors' Assn.

Kennedy Pennie Valves
Positive and automatic protection against back water and sewer gases. Made to stand smoke test before leaving the factory.

KENNEDY
VALVES~PIPE FITTINGS~FIRE HYDRANTS

Cleveland Preparing for International Heating and Ventilating Exposition

With more than half of its exhibit space already sold, plans for the Second International Heating and Ventilating Exposition, to be held in Cleveland, Ohio, January 25-29, 1932, in conjunction with the annual meetings of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers, are well under way.

One advantage the forthcoming show will have is its central location in the Cleveland Public Auditorium Annex. This building is in the heart of the Cleveland business district and within a few blocks of the leading hotels. Another advantage is the fact that the exhibits, particularly those containing coal, gas and oil-burning equipment, will be seen in full operation. It will be recalled that this feature distinguished the previous exposition in Philadelphia.

An idea of the comprehensiveness of the exposition is to be seen in the fact that it will embrace separate sections, one for the heating and ventilating industry in general, an oil burner section, a gas section, and a warm air section. In addition to the endorsement of the American Society of Heating and Ventilating Engineers, the exposition will have the active support of the American Oil Burner Association and the American Society of Refrigerating Engineers.

The fact that the American Society of Refrigerating Engineers will hold its annual meeting in Cleveland simultaneously with that of the American Society of Heating and Ventilating Engineers has made it possible to arrange for a joint session of both societies during the exposition. This meeting will be held in the Cleveland Auditorium, which is admirably suited for just such a gathering.

◆

Oil Burner Manufacturers Report Increased Business

Substantial increases in business for the first six months of 1931 over the same period last year were reported by twenty-five leading manufacturers of oil burning equipment at a recent manufacturers' conference. The increases ranged from a few per cent in some cases to as high as 107 per cent in others, and one large manufacturer reported a 78 per cent increase over 1929, which was a banner year.

The manufacturers attributed the increase to an enlarged advertising campaign and a more vigorous merchandising program.

Walter F. Tant, president of the American Oil Burner Association, under whose auspices the conference was called, declared that the gain shown in the first six months of this year indicated that the low point in the oil burner industry had been passed several months ago and presaged a record-breaking year for the industry as a whole. At the same time, Mr. Tant warned the manufacturers that they should profit by the experience of older industries and work together to avoid the pitfalls experienced by others if they care to reap the maximum benefit from the opportunity presented.

The president urged manufacturers to co-operate

• *Mr. Edward H. Loubat, Vice-President of the American Heating and Plumbing Co., Inc., 829 Baronne Street, New Orleans, La., talking about Chase Copper Tubing with John Gehl, Chase Salesman.*

MR. LOUBAT:

"Why do you say to buy Chase Fittings as well as Chase Copper Tube?"

MR. GEHL, JR.:

"Because then you can make us responsible for the success of the whole job. There's no buck-passing when you use tube *and* fittings guaranteed by *one* manufacturer."

●

QUICK FACTS

FLEXIBLE—Bends and saves fittings.
RUST-PROOF—99.9% pure copper.
STRONG—Tube and fitting stand 3230 lbs. pull.
HEAT- AND FREEZE-PROOF—Stands 400° heat. Expands instead of freeze-cracking.
SIZES; LENGTHS—All standard sizes, 60 ft. soft coils, 20 ft. straight lengths.
MARKED—Each fitting is Chase-marked. Each tube every 12 in.
TEMPER—Can be bent, but will not easily sag.

CHASE

The mark that identifies good brass and copper products.

CHASE COPPER WATER TUBING

CHASE BRASS & COPPER CO.
—Incorporated—
WATERBURY, CONN.

RIDGID
THIN BLUE CUTTER BLADE
now made with
SOLID HUB

Same thin blue tool-steel blade with steel bearing and hub cast solid—does away with RIDGID assembly.

Another important RIDGID pipe tool improvement! The RIDGID Cutter blade—same remarkable thin blue blade that outcuts them all by 300%—is now made with a solid hub, to eliminate the bother of the assembled hub. Fits any RIDGID type cutter. Same easy clean cuts—same lower cost per cut. And the cutter housing is of new and better construction, steel reinforced—guaranteed unbreakable.

Be sure to see it before you buy your next cutter. At your Jobbers.

THE RIDGE TOOL CO., ELYRIA, O.

There are RIDGID Pipe Wrenches Cutters, Vises & Threaders

RIDGID
PIPE TOOLS

closely with their dealers to see that the best possible service was given to the public. The problems of the dealer, he said, are the problems of the manufacturer. Mutual assistance should be rendered by all in meeting the industry's problem.

The manufacturers discussed their distribution methods and President Tant expressed the opinion that largest volume of sales would be through dealers rather than through factory branches.

Advertising and general trade practices were discussed and suggestions were received for building up a reasonable and constructive code for the guidance of the industry generally.

◆

Will Furnish Equipment at Radio City

Metropolitan Square Corp., (sponsored by J. D. Rockefeller, Jr.), acting through Todd, Robertson & Todd Engineering Corp. and Todd & Brown, Inc., have closed arrangements with American Radiator Co. and Standard Sanitary Manufacturing Co., respectively, operating subsidiaries of American Radiator Co. & Standard Sanitary Corp., for heating and plumbing equipment for the Radio City development.

Announcement has heretofore been made of the arrangement for metal windows and radiator enclosures with Campbell Metal Window Co., another subsidiary of American Radiator & Standard Sanitary Corp.

Convention Dates

August 13 and 14, 1931—Wisconsin—The annual convention of the Wisconsin Association of Plumbing Inspectors, to be held at Manitowoc, at the Hotel Manitowoc.

September 8-11, 1931—A. S. S. E.—The annual convention of the American Society of Sanitary Engineering to be held at Richmond, Va., with headquarters at the Jefferson hotel.

October 12-16, 1931—A. G. A.—The 13th annual convention and exhibition of the American Gas Association to be held at Atlantic City, N. J.

COMING TRADE EVENTS

August 11, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Pomonok Country Club, Flushing, N. Y.

August 13, 1931—The annual outing of the Master Plumbers Association of the Bronx (N. Y.), to be held at Karatsonyi's Resort, Glenwood Landing, Long Island, N. Y.

August 13, 1931—The regular monthly tournament of the Connecticut Plumbing and Heating Trades Golf Association, to be held at the Wethersfield Country Club.

August 18, 1931—The regular monthly tournament of the Plumbing and Heating Trades Golf Association of New Jersey, to be held at White Beaches Country Club, Westwood, N. J.

August 20, 1931—The annual outing of the Association of Master Plumbers of the State of Maryland, to be held at Heintzman's Cottage Grove Beach, Md.

August 20, 1931—The 19th annual clambake and outing of the Master Plumbers' Association of New Bedford (Mass.) and vicinity, to be held at Whitfield's Pavilion, Fort Phoenix, near Fairhaven, Mass.

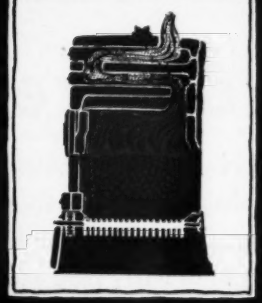
August 20, 1931—The monthly tournament of the New England Metal Products Golf Association, to be held at Hoosic-Whisick Country Club.

August 20, 1931—The fourth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Tam O'Shanter Golf Club.

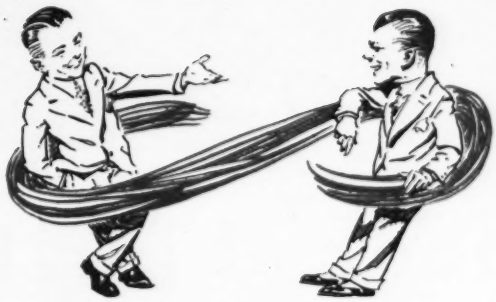
August 24, 1931—The fifth tournament of the Central Trades Golf Association of Pittsburgh, Pa., to be held at the Wildwood Country Club.

August 27, 1931—The annual outing of the Manhattan (N.

Burnham Boilers



The Burnham's long fire travel makes its short coal bill. And we can prove it. Want the proofs?



Let Burnham Boilers' Long Fire Travel Tie Your Customers to You

BURNHAM fire travel is the rope, that ties your customers to you. Ties them to you with the hold-tight of the Burnham long fire travel knot. The long travel that makes your customers' short coal bills.

Paste that in your hat where it can be seen every time you take it off.

Send for our new catalog of confidence building Burnham Boilers for every heating purpose.

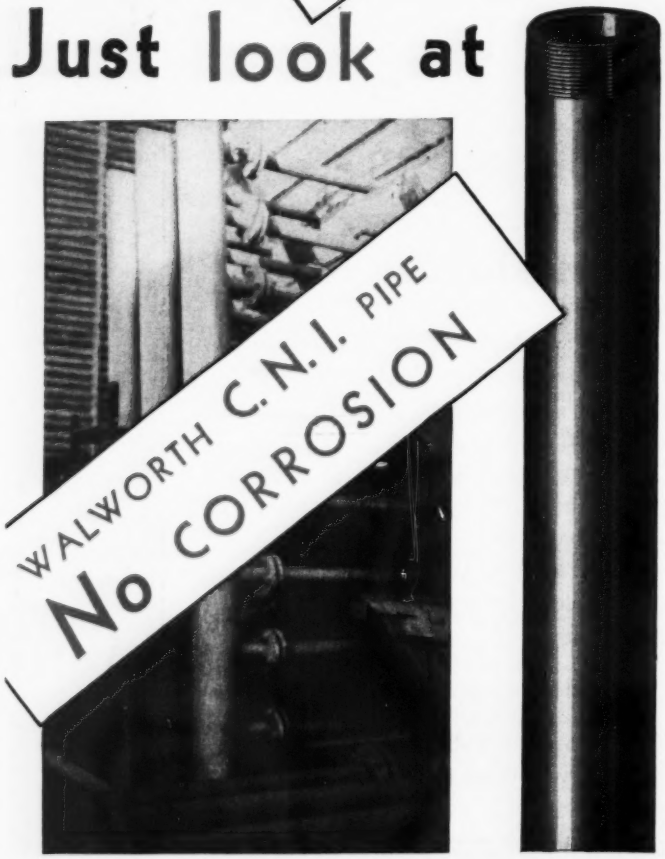
Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all principal cities of the United States and Canada

Walworth C.N.I. Pipe is available in sizes 1½ to 8" inclusive; in five-foot lengths, or welded in multiples of five feet.

Just look at the difference



BOTH of these photographs show cooling coils in operation at a large oil refinery. The difference between the reaction of ordinary pipe and Walworth C.N.I. (Chrome Nickel Iron) Pipe to the normal corrosive influences in installations of this kind is readily apparent even in these unretouched snapshots.

We have many similar photographs covering a wide variety of conditions where Walworth C.N.I. Pipe has shown a material saving in maintenance costs. Where you have conditions under which ordinary pipe fails, we suggest that you make a comparative test.

C. N. I. Pipe has the same outside diameter as wrought pipe, and can be threaded to make up with valves and fittings threaded with standard pipe threads

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 19 Rector St., New York, Foreign Representative
. . . Distributors in Principal Cities of the World . . .

VALVES FITTINGS AND TOOLS

Y.) Master Plumbers Association, to be held at Karatsonyi's Hotel, Glenwood Landing, Long Island, N. Y.

August 20, 1931—The annual outing of the Master Plumbers Association of Galesburg, Ill., to be held at Lincoln park, just north of Galesburg.

August 30, 1931—The joint picnic of the Colorado Society of Sanitary and Heating Engineers and the Denver Master Plumbers Association, to be held at Roxwood Park, Boulder, Colo.

September 12, 1931—The annual outing of the Master Plumbers Association of Jersey City, N. J., to be held at Blasberg's Farm, Hawthorne, N. J.

September 12, 1931—The annual outing of the Master Plumbers' Association of the Borough of Queens (N. Y.), to be held at Narragansett Inn, Lindenhurst, Long Island.

September 12, 1931—The annual outing of the North Hudson (N. J.) Master Plumbers' Association, to be held at Bellvedere park, Pearl River, N. Y.

September 19, 1931—The annual outing of the Master Plumbers' Association of Nassau County (N. Y.), to be held at Narragansett Inn, Lindenhurst, Long Island.

September 19, 1931—The regular meeting of the Federation of Merchant Plumbers of Southern California, to be held at Santa Barbara.

September 21, 1931—The sixth tournament of the Central Trades Golf Association of Pittsburgh, Pa., to be held at the Latrobe Country Club, Latrobe, Pa.

September 23, 1931—The fifth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Oak Hills Golf Club.

September 23, 1931—The fourth tournament of the Plumbing and Heating Golf Association of New York, to be held at the Westchester Country Club, Rye, N. Y.

September 24, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Echo Lake Country Club, Westfield, N. J.

October 6, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Woodmere Country Club, Woodmere, Long Island, N. Y.

October 20, 1931—The fifth tournament of the Plumbing and Heating Golf Association of New York, to be held at Kings Ridge Club, Portchester, N. Y.

November 16-21, 1931—The Third International Conference on Bituminous Coal, to be held at Carnegie Institute of Technology, Pittsburgh, Pa.

January 25-29, 1932—The Second International Heating and Ventilating Exposition, to be held in Cleveland, Ohio.

Top row, left to right: Warren Webster, Jr., of Warren Webster & Co., Camden, N. J.; C. V. Haines, New York City, Hoffman Specialty Co.; Frank W. Wise, Cleveland, C. A. Dunham Co. Bottom row: George R. Beasom, director of sales, Heggie Simplex Boiler Co., Joliet, Ill.; E. E. Ellwood, Youngstown Sheet & Tube Co., New York City; John R. Collette, Detroit, Mich., Pacific Steel Boiler Corp. Photos taken at the annual convention of the Heating and Piping Contractors National Association, held recently at Louisville

ALL-METAL JOINTS

—the effective Smooth-On method of preventing gasket blow-outs

SMOOTH-ON Corrugated Iron Gaskets laid up in Smooth-On No. 3 compress and set as an all-metallic filling conforming to every void and surface irregularity of the flange faces.

This all-iron combination, *without organic body matter*, with nothing to shift position, to decompose chemically or to weaken physically, *simply must* stay in place and make a perfect seal, as the response to temperature and pressure change and vibration are exactly the same as in the adjacent solid metal. The seal is permanent until the joint is intentionally opened, when a knife-blade thrust pries the old gasket from its seat.

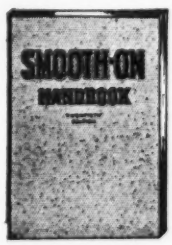
That theory and practice agree in these respects, is proven by wide use of Smooth-On Corrugated-iron Gaskets and Smooth-On No. 3 where no previously tried material and construction would hold for any great length of time. Among such installations are joints on lines subjected alternately to high-pressure highly superheated and low-pressure saturated steam, or steam, water, air and ammonia cylinders, and on flanged connections or couplings subjected to continuous vibration, to water hammer, etc.

Make a test at any troublesome joint, and see for yourself.

Get Smooth-On Corrugated Iron Gaskets in any pipe size up to 26 in., and Smooth-On No. 3 in 1-lb. or 5-lb. can, or 25-lb. keg. At your supply store or if necessary, direct from us.

The SMOOTH-ON HANDBOOK FREE if You Return the Coupon

21st Edition—136 pages of data—193 diagrams, pictures and practical hints on at least 200 different uses for SMOOTH-ON. Every progressive engineer should have this book—get your copy NOW.



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Jersey City, N. J.

Please send copy of the SMOOTH-ON HANDBOOK, 21st Edition.

Name .....

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7-31 .....

Do it with **SMOOTH-ON**

Trade Golf Events

Metropolitan Trades Golfers Play July Tournament

The Metropolitan Trades Golf Association held its July invitation tournament at Old Belleclaire Golf Club, Bayside, L. I., on July 23. The privileges of the club were obtained and extended through the courtesy of Fred Korndoerfer, secretary-treasurer of the association. No prizes were awarded.

◆

Delaware Valley Golfers Meet

Members and guests of the Delaware Valley Trade Golf Association gathered at the Concord Country Club, near Wilmington, Dela., on July 21 for their regular monthly tournament. The hosts for this meeting were Willard Speakman, president, Harry Speakman, James Fraser, Al. Gemmill, and Mr. Wright, all of the Speakman Co., Wilmington.

The association distributed twelve valuable prizes, and, in addition, Willard Speakman personally donated a silver plate and his company a silver dish. All guests were rewarded with a china thermometer.

Winners of prizes in the morning round of nine holes were as follows: Al Gemmill, 1st; R. F. Kleinman, 2nd; H. J. Kleinman, 3rd; Raymond Groff, 4th.

Winners of the afternoon round were as follows: C. L. Weber, 1st; H. J. Kleinman, 2nd; R. F. Kleinman, 3rd; W. G. Tyler, 4th; Raymond Groff, 5th; Barney Norton, 6th; E. M. Crocker, 7th.

The special prize for the golfer with the highest score went to John Doody of Philadelphia. He will receive a properly engraved bronze medal.

◆

Eastern Trade Golf Association Holds July Meet

The Eastern Trade Golf Association held its July tournament on July 21, at the Tamarack Country Club, Port Chester, N. Y.

While nearly everyone was caught in a thunder shower and it rained off and on several times, a most delightful time was had as this is a splendid course, and the members of the association who are members of this club, did everything possible for the entertainment and comfort of their guests.

The outstanding happening of the day was a hole-in-one, made by Arthur F. Glore, on the 15th hole. The ball did not bound or roll into the hole, but actually dropped in from the air, knocking out a piece of the edge of the cup.

Thomas J. Yockel won low net for 36 holes, with a 143, and took a golf bag given by R. H. Carpenter of Nash Engineering Co. Capt. Garfield won second low net with a 149, and he also took a golf bag.

W. E. Foskett won low net for 18 holes, with a 68, and took an English kit bag; John Kjerner, second low net with a 73, and won a traveling case given by Henry Sleik, of W. B. Connor Co.; L. C. Klemmer, third low net with a 73, and took a beverage shaker given by E. H. Page of C. A. Dunham Co., Chicago; Dennis McKay, fourth low net with a 74, and took a clock; H. J. Reeves, fifth low net with a 74, and took an ice tray given by Robert Smith of Hauxwell & Smith; Robert Smith, sixth low net with a 74, took a cocktail shaker; H. G. Bartlett, seventh low net with a 74, took a dozen golf balls; J. C. McDonald, eighth low net with a 75, took a dozen golf balls; F. A. Murray, ninth low net with a 76, took a dozen golf balls; and, of course, Arthur F. Glore was awarded a dozen golf balls for his hole-in-one.

◆

New Jersey Golfers Play Schackamaxon Course

The Plumbing and Heating Trades Golf Association of New Jersey held its July meet at Schackamaxon Country Club, Westfield, N. J., July 14, with Fred Engelberger as the host. It was an ideal day for golf, and the kickers' handicap was played in the morning with the following prize winners:

Position—Name	Net	Prize
1st—E. Filgon	38	3 balls
2nd—F. Robinson	38	2 balls
3rd—J. Thorne	39	1 ball
4th—H. Rumler	39	1 ball

Eighteen holes were played in the afternoon, with R. E. Ryan winning the first leg on the new cup with a net 69. Mr. Ryan flew from Washington to play. The following are the prize winners for the afternoon:

CLASS A

Position—Name	Net	Prize
1st—J. Thorne	71	Golf figure
2nd—Fred Engelberger	74	Cigarette case
3rd—Sam Wetzler	75	Leather case
4th—H. Baumgartner	77	1 ball

CLASS B

1st—R. E. Ryan	69	Golf figure
2nd—D. Samson	71	Leather bill fold
3rd—S. H. Blackwood	73	Leather case
4th—M. E. Durkee	75	1 ball
5th—H. Rumler	76	1 ball
6th—K. Burnett	79	1 ball

Guest Prizes

1st—W. Rogers	89	2 balls
2nd—J. A. Turkus	118	1 ball
Booby prize—C. Peirce	146	

Six new members were admitted. It was decided to hold the next meet on August 18 at White Beaches, Westwood, New Jersey.

◆

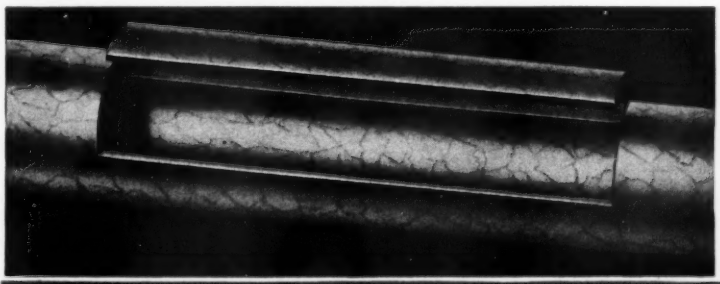
Western Trade Plays Maywood for July Tournament

Fifty-four members and guests of the Westrn Trade Golf Association of Chicago sweltered through morning and afternoon rounds over the sporty course of Maywood Golf Club on July 16, one of Chicago's record hot days. Thoroughly enjoyed and largely efficacious were W. H. Lotts' arrangements for forgetting the temperature.

The cards at the end of the day showed good and bad golf, with L. J. Pitcher leading the field with an 82-11-71 for first in classes A and B and a leg on the association cup. Right after him in the same division was W. H. Meyst with an 84-13-71. In class C, A. O. May shot

81 YEARS OF IRON AND STEEL IS ASSURANCE OF J&L PIPE QUALITY

In the 81 years of its history, Jones & Laughlin has developed from a small beginning to an outstanding position in the industrial life of the nation. This change has come through growth alone, unaffected by combinations or consolidations. The business today moves forward under the direction of the third and fourth generations of the families who established it. These facts are of significance to the purchaser of J & L pipe—for they bear evidence to a quality of product, an efficiency of service, and an uprightness in business dealing without which such long-continued existence, and such continuous growth, would have been impossible.



GALVANIZED PIPE

J & L pipe is galvanized by a special process. The pickling and cleaning of the pipe are done with scrupulous care. The pipes are drawn from the pot, and blown with steam while the spelter is still hot. This removes excess spelter and sal ammoniac flux; it prevents clogging; and it promotes a better distribution of spelter on the pipe. Inspections are thorough and complete; at regular intervals samples are tested. Some are bent, to check the coating strength; others are split open, to check the coating distribution. Thus through advanced practice, and rigorous inspection, the highest quality is continuously maintained.

J&L PIPE

OUTSTANDING FEATURES OF J & L STEEL PIPE

1—Uniform Quality Steel
2—Free from Excess Scale
3—Accurate Mill Threads
4—Free Cutting—Easy to Thread
5—Sound Couplings
6—Thoroughly Coated
7—Rigidly Inspected
8—Galvanized Pipe Uniformly Coated—No Clogging with Spelter

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

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J&L JUNIOR BEAMS

J&L STEEL PIPE

J&L LIGHT CHANNELS

J&L NAILS and STAPLES BRIGHT and GALVANIZED

J&L CONCRETE BARS

J&L STRUCTURAL STEEL

J&L STEEL PILING

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wherever continuous, quiet operation at economical cost are the requirements .....

For any bathroom job, from the most modest home to the high priced residence and for stores, offices, institutions, schools, etc. Sherwood Ball Cocks offer the most economical means of assuring complete tank operation satisfaction

They mean first of all, leakproof operation, regardless of the water pressure and they mean operation that is free from all whistling and gurgling.

They mean the finest in brass and in manufacture. They represent everything in a quality ball cock that you have ever wanted

Furnished with any length shank desired by your jobber Order Sherwood Ball Cocks today and for all your future work

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IT'S SIMPLY A QUESTION OF WHICH GLOCO TO INSTALL

No. 155

Gloco Red Band Tank Heaters have proved such a business-building line that scores of plumbing and heating contractors are *standardizing on Glocos*. With these contractors, it's not a question of which tank heater to install, but which Gloco.

Forty-five sizes to choose from—each tested to 300 pounds and guaranteed to 125 pounds working pressure. Ask your Wholesaler.

EVINS F. GLORE & SON, INC.
Grand Central Terminal Bldg. New York City

"LOOK FOR THE RED BAND OF QUALITY"

TRADE MARK

GLOCO

RED BAND TANK HEATERS

the winning golf. His 88-19-69 gave him the prize in his class and placed him just ahead of L. T. Braun, who was runner-up with 87-20-67. Isidor Weil, with a 97-28-69, was first in class D, and ex-treasurer W. V. Hoier hit par, 102-30-72, for second in that class.

Handicapper John Kiley won the morning qualifying round with 39-3-36. Blind bogey fell to W. T. Walters. A guest of J. J. Philippi, E. Hurt, shot an 84 gross for the guest prize.

The association championship match was in its third round, and W. H. Lotts, I. Weil, George Dickerson, E. Ashby, E. W. Rietz, J. H. Milliken, G. P. Smith, W. A. Taylor and H. W. Mollison won their matches to advance to the fourth round.

Consolation round winners were W. H. Meyst, F. H. Paschen, J. J. Philippi, L. T. Braun, R. J. Flanagan, J. J. O'Shea, W. T. Walters and R. B. Stiles.

◆

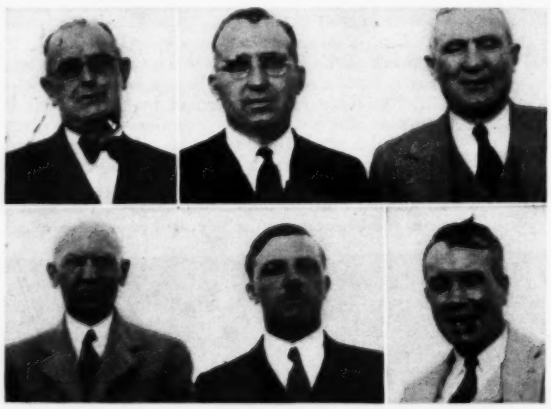
New England Trades Golfers Hold Tournaments

The New England Heating Trades Golf Association held its July meet on the 14th at the Merrimac Valley Country Club, Methuen, Mass. James F. Bride of Lawrence was host of the day.

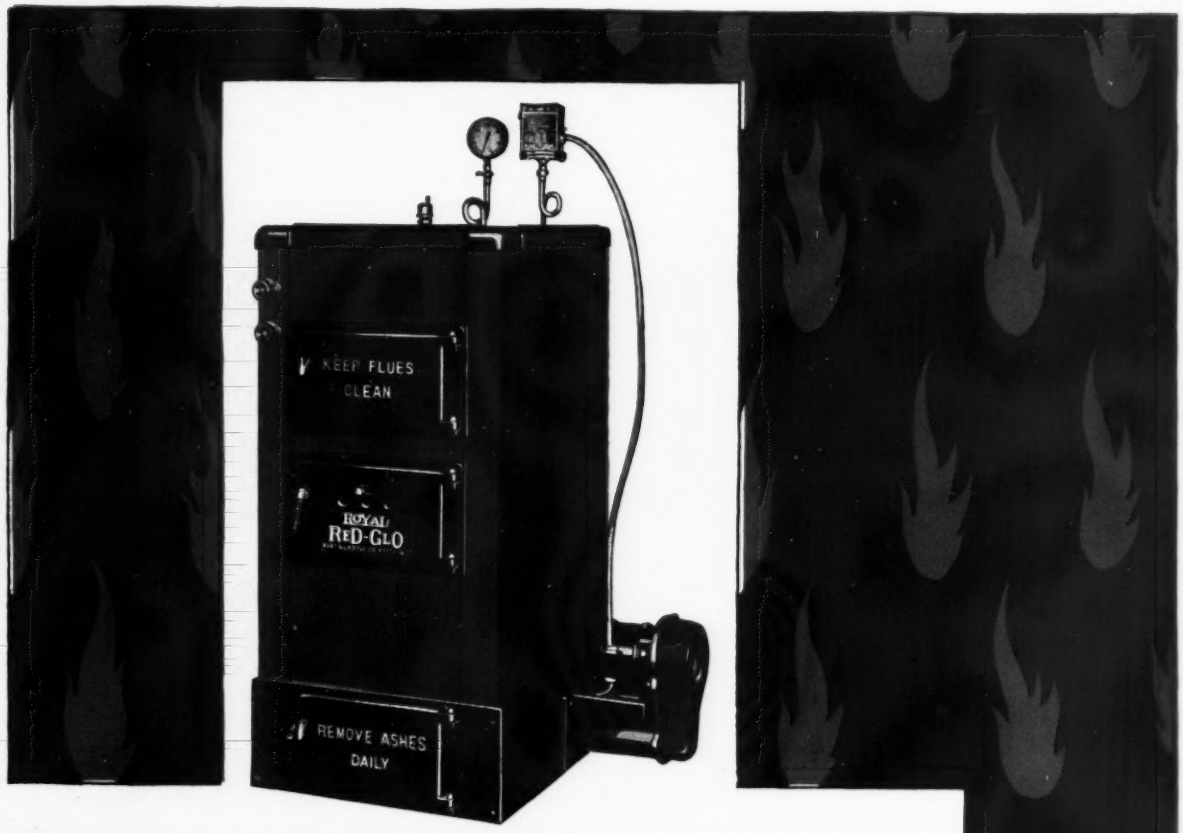
E. F. Dunn received a prize for making the most number of holes in five strokes. Low net among the guests went to A. E. Ferris, who shot a 69. The kicker's handicap went to T. O. Callaghan.

The following members received awards for their low net scores: J. F. Dwyer, E. F. Keefe, J. G. Ross, W. R. Illig, A. J. Blackhall, W. S. Anderson, J. F. Bride, Henry Lynch, T. D. B. Ingals, Ward Hillman, H. B. Buse, J. C. Farrington, Larry Gelshensin.

The June tournament held at the Belmont Springs Country Club, was attended by a large number of members and guests. The following members received prizes for the day's play: Coll T. Flint, 78; J. C. Harrington, 79; H. F. Elliott, 80; E. T. Keefe, 81; J. J. Milliken, 81; F. T. Scott, 82; J. G. Ross, 82; J. F. Tuttle, 82; R. S. Franklin, 82; W. S. Earle, 83; W. S. Anderson, Jr., 83; F. D. B. Ingalls, 84.



Top row, left to right: Ed. Morris, Merrimac Valley Supply Co., Lowell, Mass.; W. R. Illig, Jennison Co., Fitchburg, Mass.; P. W. Donoghue, Boston, president, National Association of Master Plumbers. Bottom row: Louis S. McCreary, president, Boston Pipe & Fittings Co., Boston; W. H. Oleson, manager, Heating and Piping Contractors Boston Association; M. S. O'Brien, Lawrence, Mass. Photos taken at recent tournament of the New England Heating Trades Golf Association



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with the

RED BLAST Boiler and BLOWER

The RED BLAST Boiler with blower and temperature control offers something unusual with which to get new customers. It burns the cheaper sizes of anthracite with remarkable efficiency, little attention and automatic control. It effects a large saving in fuel bills.

Additional features of the RED BLAST are: long combustion and flue travel; attractive insulated jacket; easily assembled with individual tie rods; 18" and 28" sizes. Available, if desired, without blower and controls in the RED-GLO Boiler.

Manufactured by

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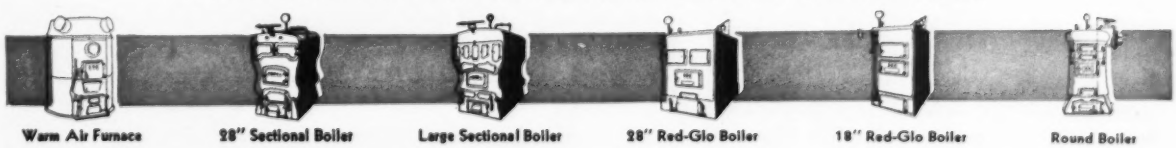
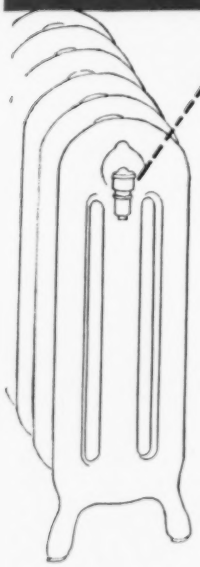
A COMPLETE LINE OF FURNACES AND BOILERS FOR EVERY TYPE OF BUILDING



Warm Air Furnace | 28" Sectional Boiler | Large Sectional Boiler | 28" Red-Glo Boiler | 18" Red-Glo Boiler | Round Boiler

What has a leaky faucet to do with a cold radiator?



JUST THIS:—That little faucet job gives you, or your journeyman, a first class chance to size up the heating system—and make suggestions.

Do the radiators have the right kind of air valves?

Does the heating system need overhauling?

Just as the leaky faucet must have a new washer to function 100 per cent and avoid waste, so every radiator in a one-pipe steam system needs a Warco Air Valve to do its full work and save fuel.

A word to your customer about this, while you are in the house, may bring you a job worth while. And that heating job will bring others, too, for it will prove that you know your business.

Hundreds of heating contractors are installing Warcos—and making money—and *saving money* for their patrons. Never leave a house without getting acquainted with the radiators. They hold the key to real profits.

"Warco" No. 1
Price $0.79

The most rapid-venting Air Valve on the market.

W. A. Russell & Company have specialized for forty-one years in air valve manufacture. They made the first valve which is the model of all high grade air valves today.

Warco Air and Vacuum Valves are found in every type of home and building. They possess exclusive improvements and they meet every venting need.

Ask your jobber.

W. A. RUSSELL & CO., *Established 1890*

New York Chicago Boston Detroit Baltimore Denver Minneapolis

"Warco" *Automatic Air & Vacuum* Valves

TRADE MARK REGISTERED

Question:—How can I make more money?

Answer: — Mail this coupon.

W. A. RUSSELL & CO., D-8
Grand Central Terminal Bldg., New York City.

Please send me full information on Warco Air and Vacuum Valves.

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New York P. & H. Golf Association Holds July Meet

Members of the New York Plumbing and Heating Golf Association, and their guests, gathered at the North Hills Country Club, Douglaston, L. I., for the July tournament. Two new members were added to the roster, W. Enders and H. Halleran.

Vincent J. Duffy, with a net 55, won first prize in the master plumbers' division, and received a leather golf bag. Morris Jarcho took second place and a leather traveling bag with a net 62. Joseph Heck, with a score of 73, received third prize in this group and was rewarded with a leather kit bag. E. Beer took fourth prize and a kit bag. A leather wallet went to John Weil, who had tied with F. Fassler and Thomas Dorsey for fifth place.

C. A. Falk won first place and a leather golf bag in the wholesaler and manufacturer group with a net score of 59. Second prize, an electric clock, went to James Lannigan, who also shot a net 59. H. P. Heil, who shot a net 63, also received an electric clock. Fourth prize, a leather traveling bag, was won by Carl Henzel, with a net 63. Fifth prize in this class went to Jerry Edwards, who received a sports belt.

In the kickers' handicap, first prize, a sports belt, was awarded to H. Leiblich, who shot a net 71. R. C. Nason received a similar prize for making a net identical score. William Enders received third prize in this class, a belt, while fourth award, another sports belt, went to A. A. Hale, who shot a 77 net. William Burtenshaw, with a net 78, took fifth prize.

The dinner in the evening was presided over by Morris Jarcho, president of the association.

◆

New England Metal Products Golf Association Holds Tournament

James Rollins, ably assisted by Messrs. Thayer, Doten, and L. Waldo Smith, was the host at one of the finest meetings ever held by the New England Metal Products Golf Association at the Crow Point Country Club, July 16.

The feature of the day was a clam-bake which also included on the menu, lobsters, roasted frankfurters and a host of other good things to eat. Several guests were present, among them H. T. Cole, president of United States Radiator Corp., Detroit, and John J. Hall, vice-president of the Standard Sanitary Mfg. Co., Pittsburgh.

From an excellent assortment of prizes, the following prize winners made their selections:

Morning Round	G.	H.	N.	Afternoon Round	G.	H.	N.
Wm. R. Weiss...	104	45	59	D. Stearns	88	29	59
Harry L. Doten..	94	33	61	G. F. Elliott.....	88	26	62
John S. Nicholl..	81	20	61	J. H. Ritchie.....	80	18	62

◆

Connecticut Trade Golfers Hold Anniversary Tournament

The Connecticut Plumbing and Heating Trades Golf Association had a splendid day for the anniversary tournament at Mill River Country Club, Stratford, Conn., on July 15.

An excellent dinner was enjoyed by the golfers, at

Because the Jarecki line is complete, you are assured of a size and model exactly suited to your requirements. Because Jarecki combines 79 years' experience with the world's most modern production methods, you are assured of unusually efficient design, workmanship and construction. Because Jarecki Valves and Fittings are tested BEYOND their working pressure ratings, you are assured of thoroughly dependable performance. Isn't this the type of service you are looking for?
Jarecki
MANUFACTURING COMPANY
ERIE, PA., U.S.A.
JARECKI
VALVES
AND
FITTINGS

Otto Epstein, Inc. installed BRASS PIPE in Aetna Life's New Home Office

New Home Office of the Aetna Life Insurance Co., Hartford, Conn. *Architect*—James Gamble Rogers, New York. *General Contractor*—Fuller Construction Co., New York. *Plumbing Contractor*—Otto Epstein, Inc., Hartford, Conn.

In the great new home office building of the Aetna Life Insurance Company, Otto Epstein, Inc., of Hartford, Conn., installed Anaconda Brass Pipe . . . 100,000 pounds of it.

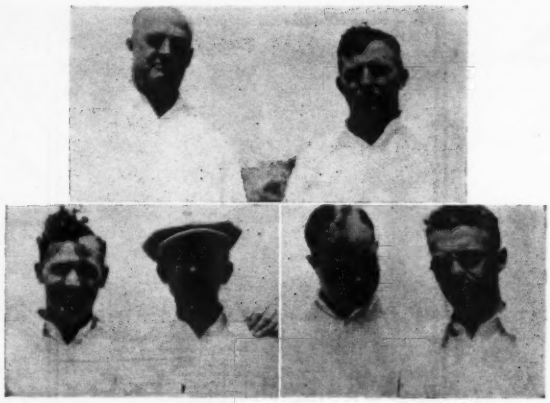
Thirty-one years in business, this contractor has executed important plumbing contracts throughout Connecticut . . . has installed *more than a million pounds* of Anaconda Brass Pipe during the last six years. Mr. Epstein knows from this wide experience of the dependable quality of this product. He writes:

"Our reputation has been built on high-class workmanship and materials, and your nationally advertised Brass Pipe has had a share in making this possible. Because it threads perfectly, is easy to install, and its quality is unvarying, we insist on Anaconda, which we consider the standard of the industry."

Leading plumbing supply houses everywhere stock Anaconda 67 for normally corrosive water and 85 Red-Brass Pipe for highly corrosive water, and Deoxidized Copper Water Tubes. The American Brass Company, General Offices: Waterbury, Connecticut.

ANACONDA
from mine to consumer

ANACONDA BRASS PIPE



Top row: R. K. Milward, president of Michigan Trade Golf Association; Earl Sheeley, host. Bottom row: A. E. Alvey, William J. Hajek, H. A. Swartz, R. L. Deppman. Photos taken at the July meet of the Michigan Trade Golf Association

which time President Nelson suggested that the anniversary meeting be held at Mill River each year. This suggestion was met with approval. Mr. Nelson also suggested that the present membership, which is limited to 60, be increased to 80, half of which were to be plumbing and heating contractors, and half manufacturers and wholesalers, and a motion to this effect was carried. The next meeting is to be held at Wethersfield Country Club, August 13th. After dinner, the following were awarded prizes:

HANDICAP
1-20

Low Gross—Frank Daly	85	Silver roll tray
2nd Low Gross—M. K. Blackwell	89	Silver vase (awarded Mr. Grassie)
G. H. Grassie	89	
Low Net—R. E. Lund	93-20-73	Humidor

HANDICAP
21-30

Low Gross—A. Mazza	88	Silver fruit basket
2nd Low Gross—E. O. Nelson	95	Silver percolator
Low Net—A. E. Russell	106-40-66	Humidor

HANDICAP
31-40

Low Gross—J. J. McCarthy	99	Silver chop tray
2nd Low Gross—J. Lockhart	105	Sugar and creamer
Low Net—J. Burnham	111-40-71	Humidor

Guest Prize

J. Meara	82	Humidor

Consolation Prize

Harry Coe	130	Humidor (awarded Mr. Abriola)
N. A. Abriola	130	

Hayes Trophy

A. Mazza	88-22-66	Mr. Mazza awarded trophy because of lower handicap
A. E. Russell	116-40-66	

◆

Portland, Ore., Welding Society Elects Officers

Officers of the Portland, Ore., chapter of the American Welding Society were elected at a recent meeting, as follows:

Chairman, George C. Dierking, Steel Tank & Pipe Co.; vice chairman, F. V. Romig, Beall Tank & Pipe Co.; treasurer, William P. Kellogg, Air Reduction Sales Co.; secretary, G. B. Herington.

The suggestion was made that a joint session be held in the near future with the Oregon Building Congress, the Professional Engineers of Oregon, the American Institute of Architects, the Oregon Master Plumbers' Association and other allied trades and professions.

You Can't Imagine what TIGHT means

until you realize how TIGHT

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HEADS are after we get through lapping them in and welding them on top. This process provides a double thickness of metal, reinforcing the top edge and removes weld from point of mechanical shock.

SOLD ONLY BY JOBBERS

Complete line of ALL WELDED and RIVETED AND WELDED Galvanized Boilers.

JOBBERS: Write us for sample of any boiler for 30 day inspection.

PENNSYLVANIA RANGE BOILER CO.
Established 1895
24th & Washington Ave., Philadelphia, Pa.

BURKS SUPER-TURBINE PUMPS

ONLY ONE MOVING PART

SERIES 4700
Condensation Return Unit

Condensation Return Units

Gathering Feathers

in a high wind is much more simple than keeping vapor out of a hot water pump. Hot vapor is highly elusive, but once it gets into the Burks Super Turbine Pump—it's a goner!

Instantly compressed and discharged into the boiler against the steam pressure! That is why the *Burks* hot water pump *won't vapor-bind!* And—since it can't become vapor-bound—it continues to pump hot water. Quite simple, isn't it?

You'll be further surprised and delighted when you learn about the other 99 fine qualities of the *Burks Pump!*

These booklets await your request: Condensation Return Bulletin No. 95. Water System Bulletin No. 94-C.

DECATUR PUMP COMPANY DECATUR, ILLINOIS

COMBINATION LAVATORY SUPPLY~ AND WASTE FIXTURES

Made from High Grade Red Pressure Metal
High Removable Seats : Swivel Discs
CHINA or ALL METAL TRIM
POLISHED NICKEL or CHROMIUM FINISH

Embodies the most popular and practical features of the finest fixtures and are furnished at most attractive prices.

Your Jobber Can Supply You

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J. B. WISE, INC.

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PHILADELPHIA
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LOS ANGELES
SEATTLE

N.A.M.P. Distributes Copies of Resolutions

The office of the National Association of Master Plumbers has just distributed to secretaries of local organizations a copy of the resolutions adopted at the Milwaukee convention in June. Resolutions of particular interest to the members of the different locals are to be called to the attention of those members.

◆

Will Head Oil Burner Dealer Division

The appointment of Arthur W. Clark as managing secretary of the newly created Dealer Division of the American Oil Burner Association was announced by Lionel L. Jacobs, chairman of the board of governors of the dealer division, at a recent meeting of Association Directors. Mr. Clark, former vice president of the Wayne Home Equipment Co. of Fort Wayne, Ind., has already assumed his duties.

Former president of the Boston Association, Mr. Clark has long been identified with the oil burner industry and is thoroughly familiar with the problem of the dealer. He joined the Wayne Tank and Pump Company in 1915 and soon became manager of the Boston office. He later was New England manager with headquarters in Boston. In 1929 he became eastern division manager for the Wayne Home Equipment Co. which took over the oil burner business of the Wayne Tank and Pump Co., and later became vice president in charge of sales of the eastern territory with headquarters in New York.

In 1930 he was temporary president of the Greater New York Oil Heating Association.

The progress made by the Dealer Division to enroll oil burner dealers under the new plan adopted at the last convention at Philadelphia, indicates that oil burner dealers are interested in any plan that will assist in solving some of their dealers' problems.

Two thousand oil burner dealers, representing almost every manufacturer in the industry, have enrolled voluntarily in the new Division. A program to assist dealers will be announced shortly and other activities among local oil burner associations are included in the program.

◆

Passaic Masters Plan Outing

The Passaic (N. J.) Master Plumbers' Association will hold its annual outing this year at Blastsberg's Farm, on Wednesday, August 26. Allan J. Blair is president of the association.

Wisconsin Plumbing Inspectors Prepare for Convention

The Wisconsin Association of Plumbing Inspectors will hold its annual convention at Manitowoc, Wis., on August 13 and 14. John H. Pepard is president of the state organization and Frank R. King, state plumbing inspector, has charge of the program. Changes in the state plumbing code will be the principal topic of the convention.

◆

"Ten to One on the Plumbers"

Inspired by the Exposition of plumbing and heating materials in connection with the recent convention of the National Association of Master Plumbers in Milwaukee, Wis., Richard S. Davis, conductor of "Not Exactly a Column" in the Milwaukee Journal, has this to say regarding plumbing and heating:

This item appears too late to be of service as an amusement guide, but nevertheless something in the way of tribute should be written about the plumbers' exposition just closed at the Auditorium. If you didn't see it, you missed one of the grand spectacles of the year. Let that be a lesson to you.

Most of the town, apparently, did see it. On the authority of Mr. Joseph Grieb, manager of the Auditorium, a gentleman as accurate in his figures as the man who counts the pennies in the mint, not less than 11,002 persons viewed the display on a single day and left the hall rejoicing. When you can interest 11,002 persons in a day in matters of health and cleanliness, you emphatically must have something. Again on the authority of Mr. Joseph Grieb, who has been looking at plumbers' exhibits almost as long as he can remember, this was the very best he has seen.

This exhilarated spectator cannot make Mr. Grieb's comparison, for never before had he been lured into a plumbing gallery, but this personal testimony may be offered: No more stimulating display of art and utility has yet been encountered. If the present homestead is ever paid for, an achievement which seems most unlikely at the moment, it will be hard to resist the temptation to build a new house, just for the joy of putting in some of those miraculous fixtures.

No wonder people are now building homes with a bathroom for every tenant, including possible visitors. In the matter of comfort, the bathroom has far outstripped the other rooms of the modern residence.

The living room, for example, remains but a chamber to shoo the children out of when their feet are muddy and the dining room is still hardly more than a filling station, but the bathroom—ah, the bathroom—why, you wouldn't believe unless you saw.

Much has been said of late about the Russian menace—how bolshevism may sweep over the world and cause all of us to go about waving whiskers and a red flag. Such talk is tosh. Just wait until the modern bathroom gets started in the land of the soviets. Immediately there will be disdain of the communist principles and a man will be exalted or debased, as he is now in America, by the number of tubs in his house.

What Russian, you are asked, could climb out of his sea-green tub, dry himself before a silver-bordered mirror, sprinkle himself with soothing powders from an immaculate medicine cupboard, dress himself in one of those unbecoming blouses and ludicrous pants and sally forth to toil for the common weal? No Russian, or any other man, could or would. No, indeed. He would get himself silk underbreeches and something neat in flannels, shave off his whiskers and buy a haircut, leisurely proceed to the office for a look at the mail, and then go out for a round of golf.

The next war, a quiet but irresistible affair, will be waged to make the world safe for the bathtub. It will be the plumbing industry against the forces of Stalin. Can there be doubt as to which will win?

◆

New York Plumbing Inspectors Organize

The New York State Plumbing Inspectors' Association was formed recently on the occasion of the 22nd annual conference of Mayors and Municipal Officials of the State of New York. The conference was held in Glens Falls. At the informal round-table conference for plumbing inspectors and members of municipal plumbing boards, over which Charles A. Holmquist of the Sanitary Division of the State Department of Health presided, the new organization was brought into existence.

J. J. Hogan of Glens Falls was elected president of the new body. H. W. Stork of Valley Stream, L. I., was elected vice president. E. D. Elwell of Amsterdam was elected secretary.

Mr. Holmquist was unanimously elected an honorary member of the organization. It was also decided that all plumbing inspectors in the state who join the association during the year 1931 shall be received as charter members. Plumbing as a health measure was discussed at the meeting, and those present expressed themselves as in favor of a standardized plumbing code for the second and third class cities.

◆

Peninsula Merchant Plumbers Association Holds Annual Picnic

The annual picnic and barbecue of the Peninsula Merchant Plumbers Association of California was held at Jack Mockabee's Mountain Retreat on Stevenson Creek, Mountain View, on Sunday, July 26. Practically the entire membership was present. Charles A. Merritt was in charge of cooking the barbecue. The afternoon was devoted to boating, swimming and other forms of amusement. "Pop" Hansen made himself popular among the children present by furnishing them with candy and soda pop.

The Peninsula association was only recently organized and takes in the district of San Mateo and Santa Clara County, with a membership of fifty-seven. J. F. Lindstrom, of Burlingame, is secretary of the organization.

◆

Maryland Masters to Hold Outing

The Association of Master Plumbers of the State of Maryland, Inc., will hold its annual outing at Heintzeman's Cottage Grove Beach, Rock Creek, Thursday, August 20.

◆

H. & P. Secretaries to Meet in Buffalo, N. Y.

A conference of the secretaries of local associations of the Heating and Piping Contractors National Association, will be held at the Hotel Statler, Buffalo, N. Y., September 14 and 15.

◆

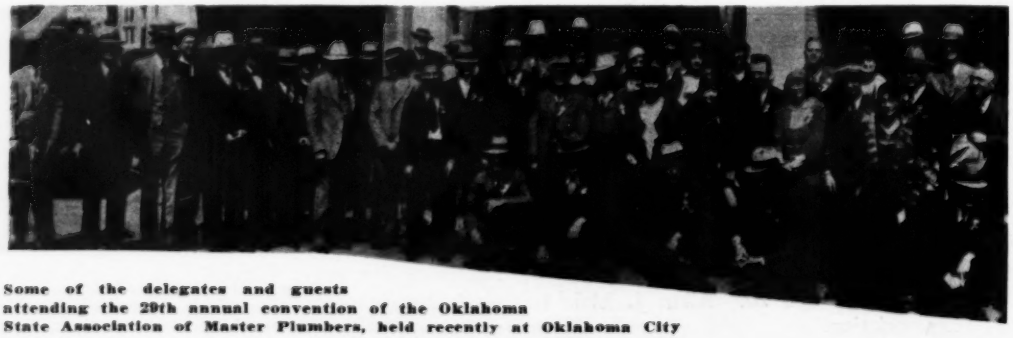
New Bedford Association Plans Outing

The Master Plumbers' Association of New Bedford (Mass.) and Vicinity, Inc., will hold its 19th annual clambake and outing at Whitfield's Pavilion, Fort Phoenix, near Fairhaven, Mass., on Thursday, August 20. Fred Robinson is president of the association, and Mark E. Greenleaf, chairman of the outing committee.

◆

Entertain Directors of Philadelphia Association

On July 25, C. W. Wanger, president of the Woodward-Wanger Co., Philadelphia, assisted by Mrs. Wanger and their son, Dick Wanger, Jr., entertained the members of the board of directors of the Philadelphia Association of Master Plumbers, at their estate near Riverton, N. J.



Some of the delegates and guests attending the 29th annual convention of the Oklahoma State Association of Master Plumbers, held recently at Oklahoma City

THE HOTEL GIBSON, CINCINNATI, OHIO

This hotel had 700 shower problems and the SPEAKMAN ANYSTREAM SELF-CLEANING SHOWER HEAD solved them all

They put one of these heads on every shower, and afterwards wrote, "Shower heads have created splendid comments from our guests, and certainly eliminated all of our shower troubles."

K-3395 Speakman Anystream Self-Cleaning Shower Head. (Pat. Jan. 2, 1923).

These shower heads fit all types and makes of showers. Sell them for showers now in use and be sure to see that every shower you install has one, otherwise it is not a modern installation.

Literature, imprinted with your name and address, will be mailed promptly.

Speakman Anystream Self-Cleaning Shower Head allows bathers to take needle, flood, or normal showers, by simply turning the lever, which pushes and pulls the six plungers, giving all degrees of shower force and volume.

And they can never stop up!

SPEAKMAN COMPANY
Wilmington Delaware

SPEAKMAN SHOWERS & FIXTURES

METAPHRAM
DAMPER REGULATORS
for
DOMESTIC HEATING BOILERS
TYPES A-AA-B-C-D
for pressure, vapor or vacuum systems
TYPE F
for large hot water boilers
TYPE H
for small, jacketed hot water boilers and tank heaters
NATIONAL REGULATOR CO.
2317 Knox Ave., Chicago
Descriptive bulletins on request

WELDCO
WATER HEATER
TRADE MARK REG US PAT OFF

Greatest Efficiency Yet Reached!

ENTIRELY new and different design in an efficient, permanent Automatic Hot Water System. Lifetime copper heating element is submerged in vitreous enameled tank. Tests reveal an efficiency never before attained—dependable, continuous supply of clean, hot water assured for the life of the building.

NEW FOLDER FREE
Write today for illustrated literature and complete details which point the way to profits for you.

The Youngstown Welding & Engineering Co.
3600 Oakwood Ave. YOUNGSTOWN, OHIO

LEGAL QUESTIONNAIRE

Answered by "The Judge" *

Short Form for Contract Covering Sale and Installation of Water Cooler

To the Editor:—

Some time ago I received a letter saying that you would be glad to help plumbers with their individual problems. I am taking advantage of this offer.

I am enclosing a circular of the article I am selling. I have never done much selling, as my work has always been just plumbing.

Now I want a contract form or bill of sale drawn up and I do not know how to word it. I do not want a time payment plan, just a regular cash contract form.

If you would help me out with a sample form, I would greatly appreciate it. New York.

Answer:

Although you do not want a time payment plan contract form, I believe that you would do well to use a conditional sale contract form, under which the title to the water cooler which you are selling would remain in you until it has been paid for, and thus give you the right to remove the cooler in the event that you do not receive your money.

As I have stated before in this column, the simplest of contract forms is good enough for the majority of cases, but no contract can be drawn which will cover all circumstances and every conceivable situation, particularly where a printed form is used for all cases. Every sale usually has some distinctive facts about it that make it necessary, if the utmost protection is sought through the contract form used, to vary the terms of the contract to suit the particular facts; however, the following form will probably be of service to you. Remember, that no contract which is made as simple as possible will prevent trouble in every case. The simple form I suggest is—

"1. This Agreement made this.....day of.....193. between J. J. Jones, of the City of.....and County of.....and State of New York, hereinafter referred to as the Seller, and.....of the City of..... County of.....and State of New York, hereinafter referred to as the Buyer.

2. Witnesseth: That the Seller hereby agrees to sell to the Buyer and install completely ready for operation, a certain.....Water Cooler, Type No. ....in (describe the building, room, office, etc.), for the sum of $.....

3. That the Buyer hereby agrees to pay to the Seller the said sum of $.....within.....days of the date when said.....Water Cooler is installed and ready for operation.

4. That it is hereby expressly agreed by and between the Seller and the Buyer that said.....Water

*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

These and Many More

In addition to the well-known line of Jenkins globe, angle, cross, check and gate, bronze and iron body valves in standard, medium and extra heavy patterns, Jenkins make many valves of a special design that have found wide use in a diversity of applications. Some of these valves are illustrated herewith. Perhaps you may find among them the solution for particular requirements. If not, please write us, for there is a Jenkins Valve in bronze, iron or steel for practically every valve need.

FIG. 890

JENKINS IRON BODY BRONZE MOUNTED GLOBE VALVE, SCREWED. Regrinding, union bonnet. For 150 lbs. steam working pressure.

FIG. 743

NEW STANDARD BRONZE GLOBE NEEDLE VALVE, with bronze spindle. For close regulation of air, gasoline, and other fluids. For 200 lbs. steam working pressure.

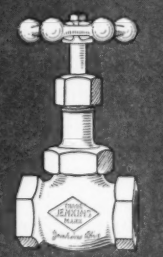


FIG. 750

BRONZE REGRINDING UNION BONNET GLOBE VALVE. For 200 lbs. steam working pressure. Also obtainable in angle, cross and check patterns, screwed or flanged.

FIG. 762

JENKINS BRONZE REGRINDING SWING CHECK VALVE, SCREWED. Renewable bronze clapper. For 200 lbs. steam working pressure, or 300 lbs. water, oil, air or gas working pressure. Can be installed on horizontal or a vertical pipe line.

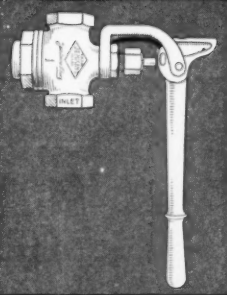
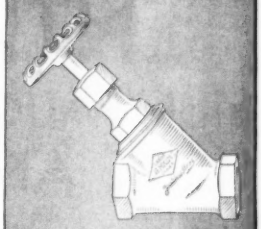


FIG. 720

BRONZE RAPID ACTION VALVE for hot and cold water and other fluids. Quick flow, on and off. Opened or closed instantly. Stays open without the aid of set screws or locking devices.

FIG. 124

STANDARD BRONZE Y OR BLOW-OFF VALVE. Opening in line with pipe. Renewable disc and seat ring. For 150 lbs. steam working pressure, or 250 lbs. water working pressure.



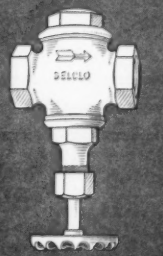
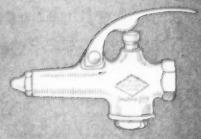


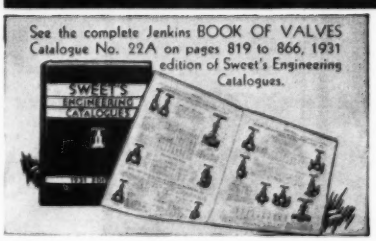
FIG. 357

BRONZE SELCLO VALVE. For severe service where valve is operated hurriedly or carelessly. Suitable for use on either steam, air or water line.

FIG. 710

AIR GUN. JENKINS RENEWABLE DISC specially compounded for compressed air service. Standard, flat, rounded or extension tip. Improved "easy-curve" lever conforms to the hand.




See the complete Jenkins BOOK OF VALVES Catalogue No. 22A on pages 819 to 866, 1931 edition of Sweet's Engineering Catalogues.
SWEET'S ENGINEERING CATALOGUES

JENKINS BROS.

80 White St., New York, N. Y.; 524 Atlantic Avenue, Boston, Mass.; 133 No. Seventh St., Philadelphia, Pa.; 646 Washington Blvd., Chicago, Ill.; 1121 No. San Jacinto, Houston, Texas. JENKINS BROS., Limited, Montreal, Canada; London, Eng. Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

Cooler and all materials and fixtures furnished and installed by the Seller under the contract, whether affixed or attached to the real estate or not, shall be and remain the property of the Seller until all sums of money to be paid by the Buyer to the Seller under this contract have been fully paid; and in the case of default by the Buyer of the payment or payments herein provided for, the Seller is hereby expressly authorized by the Buyer to enter upon the premises where said.....Water Cooler has been installed by the Seller and take possession of and remove said.....Water Cooler and all materials and fixtures which have been installed by the Seller, without being liable for any manner of trespass or waste or other damages whatsoever.

5. In witness whereof the parties have hereto set their hands on the day and date first above written.

.....
Seller.

.....
Buyer.

.....

Such a contract of conditional sale or a copy of it must be recorded in the office of the city or town clerk, in the city or town where the Buyer resides. It must be remembered that such a conditional contract of sale is of no value as against the owner of the real estate if the goods are so affixed to the real estate as to become a part thereof and not severable wholly or in any portion without material injury to the real estate, unless the owner of the real estate assented to the reservation of title in the Seller. Such a contract also is not good as against a purchaser of the real estate unless a statement signed by the Seller, together with the conditional sale contract or a copy thereof, shall be filed in the office where a deed of the real estate would be recorded or registered, before the work is done.

The foregoing paragraph is a mere skeleton of the requirements, and I suggest that if you decide to use the above conditional sale form, you have an attorney show you the necessary steps to be taken and the necessary papers to be filed.

If you do not wish to use the conditional sale paragraph in the above form, you can eliminate Paragraph No. 4. Your contract form will then be as simple as it can be made.

Whether or not fixtures have been so affixed to the real estate that they have become a part of the real estate and therefore cannot be removed by the Seller at all, is in many instances a very close question of fact and law. The law regarding the rights of the parties under such a conditional sale contract is still in a formative state and is not at all clear in some cases. If you are to do a large business of such installations it will pay you to go into the matter with an attorney which can learn at first hand the details of the sort of installation which you are to make, whether in office buildings, homes, stores, etc.

You say that you have never done much selling. Unless you get your money before you make the installations, you will have to extend credit to the buyers. The giving of credit is always a serious problem. That is why I suggest a conditional sale contract form.

ENTERPRISE

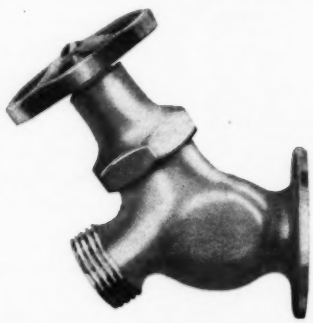
SILL FAUCET PROTECTS HOSE AND KNUCKLES

The Enterprise 4A Sill Faucet will do away with backyard "cussing." Its 45 degree spout saves skinned knuckles when attaching or detaching the hose.

It saves the hose, too, by preventing kinking. Show it to any home owner, ask him if he wouldn't prefer its convenience. You'll make a sale.

Furnished in ½" or ¾" sizes with a polished or rough N. P. bonnet on rough N. P. body. Enduring and satisfactory for every installation. Loose key or wheel handles.

Order a supply of Enterprise 4A Sill Faucets from your jobber today.



"The Difference Between an Old House and a New One Is Plumbing"

Install Enterprise Brass Goods

LOOK FOR OUR CATALOG IN PLUMBING & HEATING CATALOG

THE ENTERPRISE BRASS WORKS

MUSKEGON, MICHIGAN

The Plumber-Contractor or Merchant

By R. J. MAKARIUS

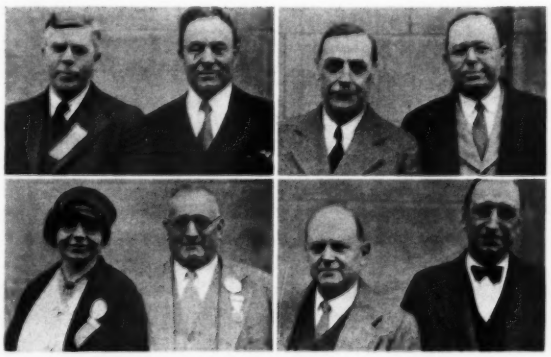
IS IT possible for a plumbing contractor ever to successfully conduct a retail over-the-counter plumbing business under the present method of distribution without established territories of trade protection? Should the jobber be permitted to quote installed prices and conduct his showroom on a retail basis, reserving a percentage for the installing contractor, thereby relegating the plumber to a dispenser of labor only? Or, by not permitting the jobber to do this will we force the customer to the direct supply houses because the jobber was unable to complete the sale when the customer visited his showroom?

The Customer: Is he your customer or the jobber's if he visits the latter's showroom of his own free will? Does the plumber control the business or does the jobber control it? Since the plumber does not have the agency for any of the materials he installs, the jobber and not the plumber is the logical distributor and will eventually resent any interference regarding his sales policy.

We as plumbing contractors, I feel, have nothing to fear regarding the jobber attempting to enter the contracting field, but the possibility of direct competition together with non co-operation from the contractor coupled with a large, nonproductive investment in an expensive showroom will force an economic change in the present method of distribution.

To offset any of these possibilities or probabilities we as plumbing contractors, in order to guard our future welfare as businessmen, must begin to formulate plans and methods of procedure relative to closer co-operation between the jobbers and ourselves to protect all of us from throwing the entire business into a condition whereby the finances of both parties will suffer to the benefit of the direct houses.

It is utterly impossible to eliminate all the bad features in any business, but by constant endeavor we can bring about a more harmonious feeling among ourselves through confidence—confidence in ourselves and confidence in our competitor.



Top row, left to right: C. D. Sheehy, Boston, Mass.; John C. Howell, New York City; E. C. Bishop, Chicago; and J. H. Doose, Evanston, Ill. Bottom row: Mrs. and Mr. J. M. Kellner, Louisville; H. H. Fick and David Petersen, both of St. Louis, Mo. Photos taken at the annual convention of the Heating and Piping Contractors National Association, held recently at Louisville

FIX-UP OLD BATHROOMS WITH T/N

WITH everybody in a "fixing-up" frame of mind, replace noisy, stained old toilets with the T/N. Here are T/N features which make it easy to sell for replacement work or *extra* bathrooms.

MODERN ONE-PIECE DESIGN... doing away with the cumbersome, unsightly wall tank, T/N fits comfortably under windows, under stairs or in corners. Comes in a wide variety of colors or in white.

UNUSUALLY QUIET FLUSHING... T/N's flushing action is quiet. A valuable feature in small homes or apartments. T/N is non-overflowing, too.

MODERATE COST... Tank and bowl are combined in finest two-fired vitreous china. Yet the price is well within small remodeling budgets.

EASY TO INSTALL... T/N installs with two simple connections—an economy to both the householder and you. Your jobber's name? Write us today.

ONE PIECE WATER CLOSET SILENT NON-OVERFLOW
Patented, Pat. Pend.

W. A. CASE & SON MANUFACTURING CO.
Founded 1853
Dept. 618 220 Delaware Avenue Buffalo, N. Y.

T/N

ONE-PIECE WATER CLOSET

How dues are set and services given to members are told in

Association Management

By LESTER E. FINCH, Executive Secretary of the Master Plumbers' Association, Bridgeport, Conn.

BROADLY speaking, the two paramount issues in the proper conduct of an association of master plumbers are the delivery of a beneficial service to the membership and an adequate arrangement in the matter of dues. Both contingencies must be carefully worked out and adjustments made to the circumstances surrounding each effort to effect through organization a system advantageous to both the master plumbers and to the public buying their services. In Bridgeport we have changed our by-laws, as they have to do with dues, a number of times, and we have built up an association service which has, through a number of years, proved its value.

Dear Sir:

Your account, amounting to $, is now so long past due that we must insist upon a prompt settlement, and unless it is attended to within five days from this date, we shall report this account to the Secretary of the Master Plumbers' Association of Bridgeport, for action. We trust that by a prompt remittance you will render this unnecessary.

Yours respectfully,

MASTER PLUMBERS' ASSOCIATION embraces Master Plumbers, Steam Fitters and Sheet Metal Contractors of the City of Bridgeport.

The first letter sent out by the contractor

A number of years ago our dues were $20 per year plus 25 cents per fixture set and 50 per cent in dollars and cents of the rating of boilers set. This proved to be too involved and difficult to keep track of accurately, necessitating a change. Another reason for the abolishment of this method was that the small jobbing shop members didn't pay in enough to leave a sufficient margin after the per capita tax was paid. Until September 29, 1922, the paragraph in the by-laws dealing with dues read: "Quarterly dues shall be $5, payable in advance on the first days of January, April, July and October." It was found that the revenue from this assessment was insufficient to meet the expenses of operating the association satisfactorily, so that repeal was necessary, and on that date the following was substituted: "That every member pay 50 cents per man per week, or any part thereof, for all mechanics in his employ, all working bosses to be paid for the same as men, to be known as dues, to become operative October 1, 1922, and collectable every week." This enactment obtained for three years, when it was found that a larger revenue was needed to further broaden the scope of the association's work; accordingly, another change was enacted, reading: "That every member pay $1 per week, or any part thereof, for one man and 50 cents per week, or any part thereof, for each additional man, for all mechanics in his employ, all working bosses to be paid for the same as men, to be known as dues, to become operative November 1, 1925, and collectable every week."

This has meant that the income from dues has ranged from a minimum of $52 per year from the shop where the member alone attends to his limited jobbing trade to approximately $800 per year from the largest shop. An account of the payment of dues is kept, in addition to the regular bookkeeping, through charts on which the name of each member is alphabetically listed and ruled off with the date of each Saturday of the year shown opposite the name in the square. When each payment of dues is made it is thus marked, revealing at a glance the status of each member. Most of our forty-eight

BRIDGEPORT MASTER PLUMBERS' ASSOCIATION

OFFICE HOURS 8 TO 12 A. M. 1 TO 5 P. M.

OFFICE OF THE SECRETARY

COLLECTION DEPT

BRIDGEPORT, CONN.,

Mr.

Dear Sir:

Your account amounting to $_____, due _____, has been placed in this office for collection.

Please call at this office and settle this account, or give reasons why it should not be paid.

I expect to hear from you on or before _____

Respectfully,

Secretary

The second letter which is sent out by the secretary

members include their dues each week in their payrolls, while others pay monthly. Every three months a membership card is issued to members who have paid.

Probably the major service rendered by the association office is the maintenance of an amicable agreement with the union. All labor disputes are arbitrated through the office, thus relieving members of the bother and time of individually ironing out difficulties that arise.

A collection agency is maintained in the office, through which last year 85 per cent of approximately $8,000 in bills, each amounting to from $5 to $25, were collected after members had given them up as lost. For this purpose a series of three letters has been worked out which have proved effective. The first of these is sent out by the contractor and the two others are sent out from the association office. A short, sharp letter coming from a third party nearly always has a psychological influence that causes the debtor to pay. These three letters are reproduced herewith.

Another factor of importance is that of the credit bureau which is maintained. This affords a report on practically every family within the city.

A private list of more than 16,000 names, appearing in a loose-leaf binder, has been compiled in the association office. These are the names of persons with whom the members have had diffi-

BRIDGEPORT MASTER PLUMBERS' ASSOCIATION
INCORPORATED UNDER THE LAWS OF THE STATE OF CONNECTICUT

OFFICE HOURS
11 TO 12 A. M. 4 TO 5 P. M.

COLLECTION DEPT.
PHONE BARNUM 563

OFFICE OF THE SECRETARY
ROOM 526
NEWFIELD BUILDING, 1156 MAIN STREET

BRIDGEPORT, CONN.

Mr._____

Dear Sir:

You have failed to make any reply to my letter of the_____. Unless this account is paid before_____, legal proceedings will be taken against you.

Respectfully,

_____
Secretary.

Above: The third letter which is also sent out by the secretary

Below: Estimating sheet listing all the materials used in a plumbing installation

Estimates for_____ **Architect**_____

Location_____ **Date**_____

WATER MAIN
ft. lead pipe lbs.
ft. iron pipe
permit
tap
curb box
curb cock
lbs. solder
faucet
digging labor
labor

SOIL PIPE EX. HY. STD.
D. H.
ft. 2"
ft. 3"
ft. 4"
ft. 5"
ft. 6"
S. H.
ft. 2"
ft. 3"
ft. 4"
ft. 5"
ft. 6"

SOIL PIPE FITTINGS
Bends 2" 3" 4" 5" 6"
1/4
1/8
1/8
Y's
TY's
Red. Y's
Tapped T's
Tapped TY's
Increasers
Special Fittings

ROOF FLANGES 4"
5"
6"

CLEANOUTS 2"
3"
4"
5"
6"

VENTS 4" galv. pipe
3" galv. pipe
2" galv. pipe
1½" galv. pipe
Fittings

DRAINAGE FITTINGS

Hangers
Sleeves
Inserts

SOLDER NIPPLES

CAULKING lead
Oakum
Gasoline

Amount Forwarded

CLOSETS Oak
Vit.

Lead Bends
Ferrule
Lead Vent
Caulking Ell
Slab, flange and bolts
Wheel valve

LAVATORIES

Supplies
Trap
Cocks
Valves
Special waste

BATHS

Supplies
Cocks
C. W. and O
Valves
Traps
Special waste
Showers

SINK

Cocks
Traps
Cock ells
Specials

RANGE BOILER

Tube
Stand
Couplings
Draw-off
Specials
Special tank
Tank heater

FLOOR DRAINS

REFRIGERATOR WASTE
Sink
Pipe
Fittings
Trap
Faucet
Specials

PANTRY SINK
Cocks
Traps
Cock ells
Specials

WASH TRAY

Legs
Covers
Cocks and thistle
Trap
Specials

URINAL

Cock
Trap
Tank
Specials

Amount Forwarded

SCRAP SINK
Lead Vent
Caulking Ell
Ferrules
Bend
Trap
Cocks
Supplies
Special

SILL COCK
Stop cock
Sill cock

SUPPLIES
GALV. PIPE ½"
BRASS PIPE ¾"
1"
1¼"
1½"
2"

FITTINGS

COVERING

LEAD PIPE
½"
¾"
¾"
1"
1¼"
1½"
2"

SOLDER

STOP & W. COCK & VALVES
½"
¾"
¾"
1"
1¼"
1½"
2"
Wall cock

GAS PIPE
¾"
½"
¾"
1"
1¼"
1½"
2"

FITTINGS

Amount Forwarded

INCIDENTALS
CARTAGE AND FREIGHT
COMPENSATION
TAX
CARFARE AND BOARD
LABOR
Man
Helper

COST
OVERHEAD %
PROFIT %

BID

SHEET METAL
Rolls tin
Tin roofing and decks
Gutter Galv. Copper

Hangers
Tubes
Ends
Mitres
Solder

Leader Galv. Copper

Bends
Hooks
Solder
Labor
Man
Helper
Incidentals
Cartage

Cost
Overhead %
Profit %

Bid

LOOK for cases like this...

Acid eats away pipe—ordinary drain-pipe. Replacements must be made . . .

Here is a case in point:

"We find that we will be obliged to replace drain-pipes, fittings and traps from our chemical laboratory by corrosion-proof equipment," writes the president of one of the smaller Middle Western colleges. "Our drain-pipes at present are the ordinary plumbers' fittings and last only a short time, besides giving a great deal of trouble by leaking into departments on the floors below."

Look for cases like this. There are always some in your vicinity—where corrosive wastes are handled—engraving plants, photographic establishments, battery stations, laboratories, hotel and restaurant kitchens.

Give them Duriron Acid-proof Drain-Pipe. Your profits are bigger. Investigate.

THE DURIRON COMPANY, INC.
410 N. Findlay St. Dayton, Ohio

DURIRON ACID PROOF DRAIN-PIPE

culty in getting their money and covers a long period of years. There is also on file a report of the Merchants' Retail Credit Board, which lists practically everybody in the city and its vicinity. A case in point that reflects the merit of this service occurred when a man from a distant section of the city called upon a member to do a job of considerable size. The member got in touch with the office and asked for a credit report on the man, which showed that he owed another member a fairly large bill of over two years' standing, which he had constantly ignored without explanation. The member got in touch with his prospective customer and, calling his attention to the bill, stated that he could not do the job until it was paid. The prospect paid immediately and accepted the terms of the master plumber for the second job, which were payment in advance.

Another feature of association service lies in an estimating sheet listing all of the materials used in a plumbing installation. The listings appear in systematic order and ruled spaces are provided after each for quantity and price entries. These sheets, distributed without cost to the members, provide a means of keeping a permanent record, as each is punched for filing in a loose-leaf binder and insure against error by omission in estimating.

Our records show that a cash value is offered the membership for dues paid in the collection of old bills which averaged approximately $140 per member.

In the matter of maintaining membership interest we in Bridgeport firmly believe in keeping members busy by placing each one on a standing committee and requiring him to take an active part in the affairs of his organization. Each year many are shifted from one committee to another, permitting thorough familiarity with the functionings of their association in the industry to which they are devoting their lives.

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Chicago Masters Play Third Golf Tournament

The Plumbing Contractors' Association of Chicago held its July golf tournament on the 22nd of the month at the Euclid Hills Golf Club. The morning round of nine holes was followed by 18 holes in the afternoon.

In Class A for members, first low net and six golf balls went to Charles W. Jones. Second place was taken by Ed. Mortimer, who received a golf pencil. Third place in the group was won by C. J. Erickson, who received three golf balls.

Ray Ferguson won first low net in Class B for members and received six golf balls. A pair of golf hose was awarded Frank Kveton for winning second place. E. C. Wagner, who took third, received three golf balls.

In Class C for members, George Feldkamp won a duffle bag for first place. H. H. Diedesch, who took second, received an ash tray. Three golf balls were given C. D. Harris for third place.

First low net in Class A for guests was won by Clyde Savage, who received an ash tray. Fred Zimmer received a bridge set for second, and William Spillane three golf balls for third.

In Class B for guests, William F. Hildeman received a cigarette case for first low net. A bridge set was awarded K. McKenzie for second place, and E. C. Garrity received three golf balls for third.

William Ritter, who won the blind bogey match, received a swinging spout faucet.

Our Readers Tell Us

"Automatic Heat" Is Valuable

To the Editor:

We certainly appreciate the section on Automatic Heat that you have put out and our whole sales force is busy chewing up every bit of it.

It is especially valuable to us at this time because of the present lack of new construction.

We note that many coal dealers are handling stokers but we think that the plumbing and heating contractor is the logical outlet for the stoker because he has automatic heat to sell and if his line is complete, including conversion burners, gas boilers and oil burners he is in a position to give service that the coal dealer cannot expect to give. We believe that automatic heat will jump ahead by leaps and bounds in the next few years and we are out to get the cream now.

The samples are fine; we are anxious for the next time.

(Signed) Wilshire Plumbing & Heating Co.
Akron, O. Earl M. Patterson.

"Flat Rates Should Be Charged on All Materials"

To the Editor:

I believe that flat rates should be charged on all materials. These rates to be compiled into a suitable price guide for various districts and used for all repair work. For instance, a person calling any one of a dozen shops, in regard to replacing a range boiler, would get the same price for the range boiler at each shop—each one quoting $10.00 plus installation.

This would tend to bring our business out of the alley and along the lines pursued by the great manufacturers—of an established resale price. Henry Ford's price is: So much for the parts, plus labor. I think Mr. Ford has pointed a way that we might well follow. We would be assured of a profit on the merchandise without increasing the cost of the labor, which is so commonly done in our business.

This would tend to bring our business out of the alley

I appreciate that this is somewhat of a compromise between the two attitudes taken in the various letters you have received on this subject. In my opinion, it is the only fair way to secure a just profit, without overcharging the consumer to guard against loss through faulty workmanship. It will teach the consumer to judge merchandise and labor as two separate items. In the course of time a consumer would say: "John Smith's material is good, but his service is poor." As a result John Smith will either improve his service or resort to price cutting and force himself out of business as 85 per cent do in five years.

Thanking you for this opportunity to present my opinion, I remain

Omaha, Neb. Wray M. Scott.

How to Meet "Direct-to-You" Competition

To the Editor:

The present business conditions have dealt their blow to the heating industry in turn as with the nation's other businesses. A number have been left by the roadside and others have turned to more modern merchandising ideas as a salvation from their troubles. The manufacturers have set forth their ideas of merchandising, but the end of the present year will, without a doubt, see radical changes in the merchandising of plumbing and heating products.

What has the plumbing and heating contractor to sell? Service and responsibility—yes, but he must be a salesman to sell this product to the average purchaser today at a preference. The manufacturers can tell us how to go out and sell their products, which is well and good; their ideas are tried and sound. But what contractor today is getting a margin of profit sufficient to pay his overhead consisting of estimator, bookkeeper, stenographer and superintendent, much less a trained salesman? Suppose he does go to John Doe and sells him on a certain manufacturer's boiler and radiators. With today's public educated to competition John Doe will go to his neighborhood plumber and buy the same boiler and radiation at a much lower price.

The "direct to you house" has become a thorn in the side of both the contractor and the manufacturer. The statement has been made that the "direct to you house" sells more merchandise than the regular plumbing and heating contractor. I do not believe this is true, but it demonstrates the course the "direct to you house" has taken.

Where does the solution lie? Wiser heads than mine are being scratched for this answer. And my ideas are in line with those of some of the largest manufacturers. We have demonstrated in our locality that a product can be sold if the contractor has something more to sell than service and responsibility and at a margin of profit far in excess of that which the average contractor is getting today; a margin which will permit the contractor to organize a sales organization equal to those leading today's sales programs.

The answer is: Exclusive contractor manufacturer representation. Does the automobile manufacturer sell any automobile dealer who will buy his product? No! Then why should the heating and plumbing manufacturer sell any steamfitter or plumber who will buy his product? The automobile industry is the leader in those rallying from the present business slump. They have one of the greatest sales organizations of any industry because their salesmen have something more to sell than service and responsibility.

If the contractor's salesmen could go to John Doe and sell him not only the quality of his service and his responsibility but the color of his boiler, the shape of his radiators, the responsibility of the manufacturer behind it, and if the contractor around the corner could not cut his price on this product, John Doe would sign

the order, get a better job and be well satisfied in the end. His money has been more wisely spent, the heating contractor has made a profit and a salesman has made a salary, so the entire industry has benefited with John Doe.

If the contractor's salesmen could go out and ask his customer if he liked his company's radio program, how much more effective would the results be. If the national advertising program could be tied in with local sales programs, the purpose could be driven directly home through organization that was directly interested and responsible.

It is natural that the large manufacturer would pick the most progressive and largest contractor to represent him in a locality. What would happen to the one man shop? It does not take but one guess and here is the direct solution to our problem. As it is, the one man shop has driven profits to their present low margin. If the one man shop is working for a salary equal to or lower than that of the journeyman, why should he have the responsibility of a business on his shoulder when he can do himself greater justice by working as a journeyman, as well as be an asset to the great wheel that forms our industry instead of a detriment to its progress. Yes, there is the larger shop that demands a place in the picture since there are not enough manufacturers to go around. As this is a large program the larger contractor will need some branches to thoroughly and efficiently cover a large territory. These medium sized shops with their modern showrooms offer splendid meeting places for salesman and customer.

The "direct to you house"—where is his place? You guessed it! We have so thoroughly covered this great city of ours with our gigantic sales organization that there is nothing left for him to survive on. How much easier it is for our customers to be sold in their homes rather than we wait for them to come to our antiquated plumbing and heating shops to buy from us.

You say it can't be done. We are doing it and we know whereof we speak. For the past year we have represented one of the large manufacturers of gas warm air furnaces on an exclusive basis and have sold them through a sales organization without the usual price competition. Yes, we have had the competition of other manufacturers, but our salesmen have been trained to sell their product and if the salesman does his job properly we, in most cases, are able to eliminate this competition.

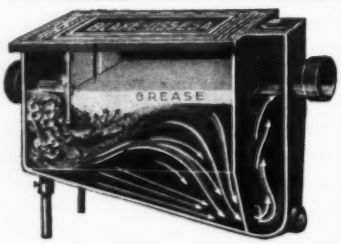
If it can be done with warm air furnaces, why is it not possible to do it with radiator heating or plumbing equipment as well? It can.

(Signed) Wm. R. Stevens,
Cincinnati, Ohio.

No Two Repair Jobs Are Exactly the Same

To the Editor:

A flat rate for repair charges would not apply here. I have been a plumber in this state for twenty years, sixteen years in one location The flat rate price cannot be used to advantage by any plumber here from the fact that no two repair jobs are exactly the same. My territory covers five towns. I am inspector for two towns. It would not be a fair thing either to the cus-



15 YEARS AGO

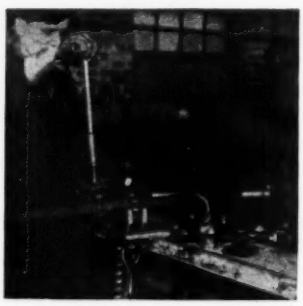
The Blake Ussessa Grease Trap was first introduced to the trade. Tests have been made of this trap in all the important centers of industry and have continuously proven its high efficiency in operation. In one test in New York City a Blake Ussessa Trap achieved the almost impossible figure of grease removal of 99.9% without the use of a water jacket.

It found immediate popularity among the plumbing trade and today thousands are in use throughout the United States in hotels, restaurants, oil refineries and packing plants.

When making grease trap installations, use only the "Tested Blake" the ORIGINAL and exceptionally efficient grease trap. They are made in sizes from 45 gallons to 15,000 gallons per hour. Your jobber will be glad to supply the Blake Ussessa Grease Trap.

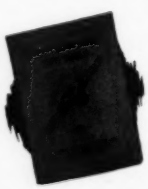
BLAKE SPECIALTY COMPANY
ROCK ISLAND « ILLINOIS

ARMSTRONG BROS.



This Catalog Will Bring You Up To Date on Pipe Tools

After over 35 years of specialization in the manufacture of fine tools, after originating a System of tools that became standard the world over—tools that are used in over 96% of the machine shops and tool rooms—the Armstrong Bros. Tool Co. entered the pipe tool field. After exhaustive tests of all types and makes, this company developed a complete line of *Improved* pipe tools, a line that is now known as the "*Better* Pipe Tools." The superiority of these tools, which are distinguished by the Arm-and-Hammer Trade Mark, results from improvements in design (as many as 14 improved features on a single tool), better materials (hardened steels, alloy steels and drop forgings are freely used wherever they will add to the strength or life of a tool), and more accurate machining.



Today, ARMSTRONG BROS. "*Better* Pipe Tools" comprise the most complete line of pipe tools made. They make work easier and faster. Write for Catalog P-10. It will bring you up to date on pipe tools.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave. CHICAGO, U. S. A.
London Branch
ARMSTONG BROS. TOOL CO. LTD.
35 Upper Thames St., London, E. C. 4, England

tomer or plumber to fix a flat rate price. Tanks and tank valves are of different types. Where you could repair tank valve of a low tank in ten minutes, a high tank valve might take three-quarters of an hour. It is necessary to disconnect the high tank and remove it from brackets before a man can repair the tank valve. I have in my territory several old type cone valves, and high tanks up near ceiling, etc., etc. Old style faucets wiped to lead, ice replacing washer brace screw twisted off that means re-tapping of course. Newer faucets can be repaired in a short time. Why go into details further. It can't be done here.

Respectfully yours,
(Signed) H. H. Hutchinson.
Brooks, Maine.

Sherman Law Should Be Enforced

To the Editor:

As an active factor in the plumbers and steam fitters supply business of many years standing, devoted almost exclusively to the distribution of such products, and also because of the active co-operation with the various supply associations both general and local, and a long experience connected officially with some of our leading manufacturing interests, I hand you herewith carbon copy of my letter of June 12th to the Hon. Calvin Coolidge, all of which is self-explanatory.

Any immediate attempt to ask the government to adopt measures for a strict enforcement of the Sherman anti-trust law owing to the combinations being so strongly entrenched and active at the present time would have to be started in some other way or through some other channels representing the masses who are suffering today from the depressed conditions of affairs. Let's hope that some action will be taken that will soon change the complexion of the present method of doing business.

(Abstracts from enclosure referred to.)

An experience of forty-five years, handling products entering into the building and construction line, has fully demonstrated that the commercialism of the world starts at and begins with housing and building construction. From this all business of every character gradually develops. * * * I have seen and passed through the many depressions in business which have occurred periodically and from which not only this country but the world at large was always able to grow out of when business generally, not only in the manufacturing lines but in the disposition of all products, was carried on a legitimate, *competitive* basis and always with satisfaction to everybody. To my mind, the same conditions would still prevail and continue if the Sherman anti-trust law had been maintained fully operative and had prevented the various consolidations of not only manufacturing and commercial interests but banking interests as well and the so-called chain store consolidations which have been gradually sounding the death knell of the small hard working distributor and manufacturer with limited capital. It is these very consolidations with improved methods of mass production that have been the means of gradually driving out of business the small independent manufacturer, jobber or retailer working along the lines of endeavor of the earlier days.

(Signed) Robert K. Story,
New York, N. Y.

The Name

"KOVEN"

Designates . . . .

— a *reliable* source of tanks, range boilers and sinks for the plumbing trade.

— backed by an organization of specialists trained to meet *your* particular needs—with standard equipment . . . or equipment built to specifications.

— plus *service* . . . prompt, efficient, trustworthy.

— or, in short, *complete* SATISFACTION, as evidenced by a reputation of more than 50 years' standing.

ASK YOUR JOBBER for . . .

KOVEN Range Boilers
(Rivetweld and Welded)

Septic Tanks ***Storage Tanks***
Expansion Tanks ***Barber Boilers***
Pneumatic Tanks ***Fuel Oil Tanks***
Galvanized Steel Scullery Sinks
(***Stock Sizes and to Specification***)

1881 . . . . .

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L. O. KOVEN & BRO., Inc.
154 Ogden Avenue
JERSEY CITY, N. J.

MERION
WATER HEATERS

Your merchandising problem consists of not only showing your customers something that they need and want but also something they can afford to buy. Merion Water Heaters give that clean, constant, abundant supply of hot water that every American family should have. At the same time it does so at an original and operating cost within reach of modest incomes.

That is why you should display advertise and sell Merion Water Heaters. They're fast movers and they make a neat profit for you

We will answer your request for information promptly and with full details.

JOHN WOOD MFG. CO.
CONSHOHOCKEN, PA.

Death of John W. Clark

John W. Clark, executive secretary of the Association of Master Plumbers of the State of Maryland, Inc., died on July 23, in the Sinai hospital following an illness of two weeks. His sudden death came as a distinct shock to his many friends.

John W. Clark

Mr. Clark was born in Baltimore thirty-eight years ago. He was educated in the public schools, and first became identified with the plumbing industry in the employment of the F. C. Dorsey Co., where he remained for two years. At the time of the reorganization of the Association of Master Plumbers of the State of Maryland in 1926 he was appointed its executive secretary and remained in this position until his death.

He is survived by his widow Mrs. Dorothea Green Clark; a daughter Dorothea; two sisters and a brother.

◆

Death of James A. Diggle

James A. Diggle, for many years one of the most prominent contractors in the state of Indiana, died a few days ago. He was found dead near Flatrock cave, south of Shelbyville, Ind., where he had come to attend a family picnic. Mr. Diggle had been ill for some time, and it is believed he suffered a heart attack. He was buried in Indianapolis, where he had made his home for many years.

Mr. Diggle was born in Washington July 22, 1862, and moved with his parents to Chicago, and was educated there. He became an apprentice plumber and after learning his craft went to Indianapolis in 1900 and established the J. A. Diggle Co.

He was a member of the state and national Master Plumbers' Associations and also of the Kiwanis Club, the Rotary Club, the Indianapolis Athletic Club, the Elks Lodge, Oriental Lodge, F. and A. M., York Rite, Scottish Rite and the Shrine.

Survivors are the widow and a son, Rutherford G. Diggle.

◆

Oregon Master Plumbers Form Vocational Class

Oregon master plumbers are organizing a vocational class under the sponsorship of the Oregon Building Congress, for the purpose of training in salesmanship and in tips on how to increase plumbing installations. Sessions are to be held weekly.

C. C. Weideman, executive secretary of the Oregon Building Congress, states that a class in sheet metal craft will be the next to organize. The building contractors have been meeting for this purpose weekly for some time and have gained much of constructive value along this line already, and it is anticipated that the master plumbers' group also will find their meetings exceedingly profitable.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

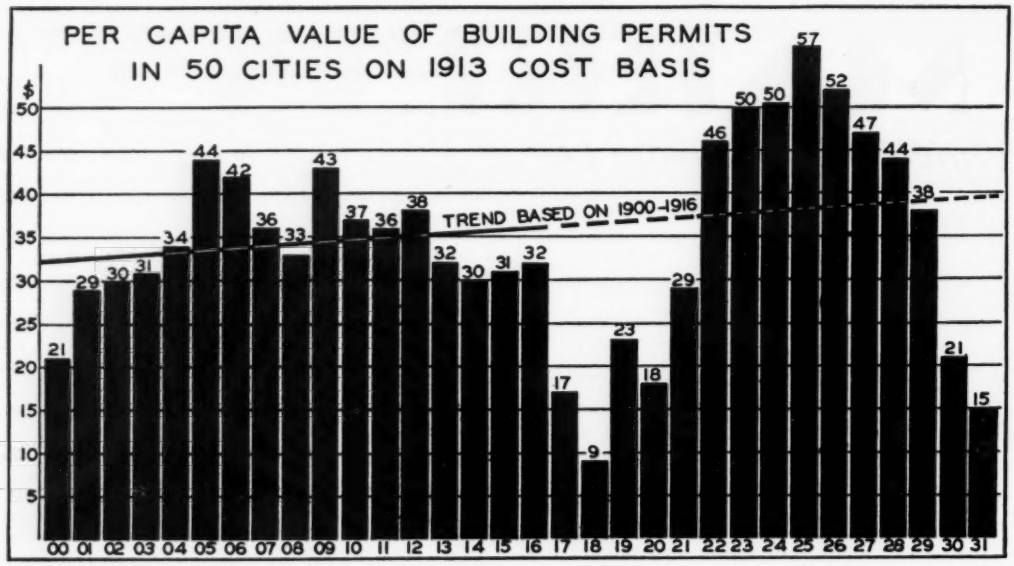
REPORTS that have been received during the past two weeks indicate that the movement of plumbing and heating supplies into consumption maintained just about the same pace as prevailed in the earlier two-week period, with plumbing finishing goods constituting the bulk of the volume. Wholesalers are continuing to purchase material in a conservative way, and orders they place with manufacturers' representatives are usually to take care of near-at-hand needs. Jobbers' stocks are light but the quick shipment service made available by manufacturers makes it possible for wholesalers to meet their customers' needs without delay.

The Cleveland Trust Co., in its latest Business Bulletin, says: "The President's proposal for a moratorium of one year on international debts dispelled despondency, and restored confidence in Germany. It was an emergency measure, effective in preventing a threatened disaster. It should be regarded as being only a first step in a series of international accords so directed as to grapple with the fundamental problem of this depression, which is that of the continued decline in the prices of commodities entering into international trade. The major steps in such a series appear to include a moratorium, and then a scaling down of international debt payments, the granting of increased international long-term credits and the progressive lessening of the restrictions and barriers to international trade."

June shipments of solid porcelain plumbing fixtures, as reported to the Bureau of the Census by nine manufacturers, comprising the entire industry, were 8,334 pieces, as compared with 7,348 pieces in May and 7,909 pieces in June, 1930. Total shipments for the first six months of 1931 were 40,795 pieces, as compared with 43,769 pieces in the corresponding period of last year.

May shipments of plumbers' woodwork, as reported to the Bureau by 19 manufacturers, were 125,652 pieces, as compared with 127,055 in April and 156,641 pieces in May, 1930. Total shipments for the first five months of 1931 were 603,045 pieces, as compared with 741,970 pieces in the corresponding period of 1930.

June shipments of domestic water softening apparatus, as reported to the Bureau by 21 manufacturers, were 663 units, as compared with 702 units in May and 752 in June, 1930. Total shipments for the first six months of 1931 were 4,457 units with a net sale price of $529,497, as compared with 7,357 units with a net sale price of $919,810 in the first six months of 1930.



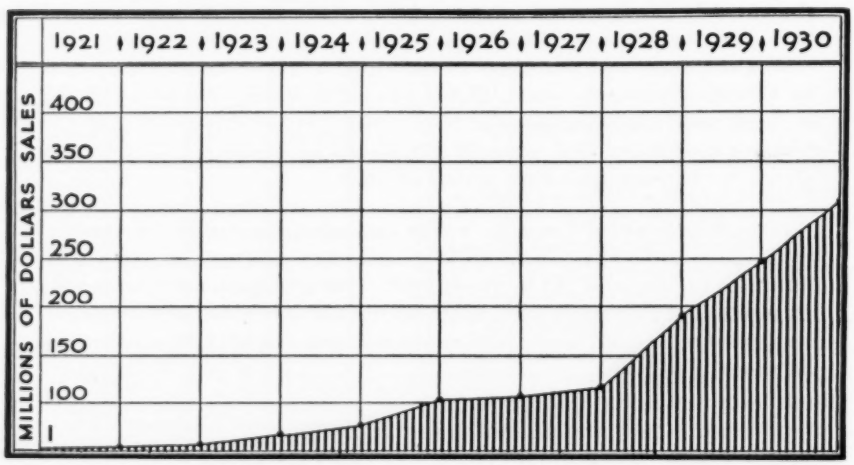
Building Shortage Is Predicted

DURING the depression that was under way 10 years ago the Cleveland Trust Company made a study of building conditions in 50 leading cities in order to find out whether or not there probably existed at that time a shortage of building construction. One of the products of that study was a diagram which has been brought up to date, and is reproduced at the top of this page. It indicates that when the depression of 1921 came into being there existed in the cities of this country a great accumulated shortage of building construction, but that when the present depression came no such general shortage existed.

The upright columns of the diagram represent for the 32 years beginning with 1900 the per capita values of the building permits issued, if the costs of building had remained constantly at the levels that prevailed in 1913. Through these upright columns a trend line has been drawn. It is based on the data for the years through 1916, and indicates what the computed normal volume of building would have been for those years. This trend line has been extended to cover the entire period through 1931.

In the years before the war the volume of building fluctuated slightly above, and slightly below normal, year by year, and no important surplusses or shortages developed. During the war period, and the years imme-

Oil Burner Sales Mount Rapidly



Oil burner sales have increased rapidly in the past few years. In 1921 sales amounted to only $7,500,000, as compared with $321,000,000 in 1930

The Metal Market

	Aug. 3	Avg. May, 1931	Avg. Mar., 1931	Avg. 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.60c	1.65c	1.65c	1.93c
*Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.85c	2.00c	2.05c	2.17c
Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.40c	2.25c	2.35c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.90c	2.80c	2.90c	3.57c
TIN—				
Straits tin (spot) New York	26.50c			
LEAD—				
E. St. Louis	4.22½c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	14 c	Copper, light	4¾c
Block tin pipe	16 c	Heavy copper and wire	5¼c
Brass, light	3 c	Zinc, old	1½c
Brass, heavy yellow	3½c	Lead, heavy	3 c
No. 1 comp. red brass	5 c	Solder joints (close cut)	4¼c
Heavy crucible copper	5¾c		

NOTE: Prices are those quoted on Tuesday of this week.
*Comparative prices based on No. 13 sheets.

diately following, the volume of new construction fell to abnormally low levels, and a large shortage developed, amounting in the aggregate to the equivalent of all the construction that would normally be completed in about two and a half years. The pressure to make good that shortage was one of the stimulating forces that operated to lift business and industry out of that depression.

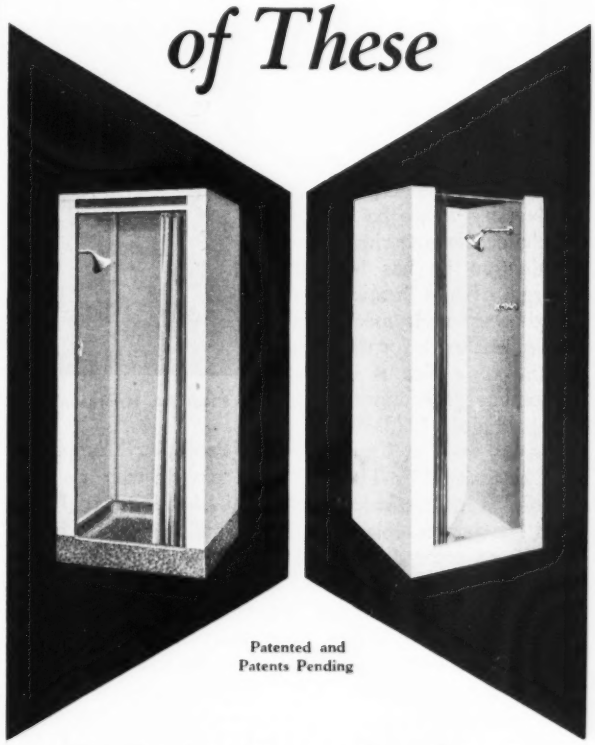
The depression was at its worst in 1921, but the volume of building sharply increased in that year. It continued to advance until in 1925 new construction was going forward at a rate fully 50 per cent above the computed normal. It then began a decline that continued until the volume for 1929 was slightly below normal. By that time the great accumulated shortages of the war, and post-war period, had been made up, but no important surplus had been created. According to this showing the present depression came at a time when our building needs had been fully met.

Now a new shortage is in the making. The volume of new construction in these cities in 1930 was only about one-half the normal amount. The figure shown for 1931 is based largely on estimates, but the prospects are that the new building done this year will not be greatly over one-third of the computed normal volume. It now seems probable that when this depression has run its course a recovery of business will bring a restoration of building to its normal activity, and it does not seem likely that important increases in building will come first, and be effective in helping create business recovery. The 50 cities from which data have been taken for these estimates include in their populations about one-fourth of all the people in this country.

◆

William P. Hoffmeister, 1112 Stark street, Utica, N. Y,. recently completed the installation of the plumbing system in the new "Model Home," located at 1624 Grand View avenue, York Heights, Utica, for the Dan Milne Service.

Profit from Either of These



Patented and Patents Pending

The Weis line of shower cabinets offer you the opportunity to make an attractive proposition to the owners of homes, both large and small, elaborate or modest, costly or inexpensive. All modern folks prefer shower bathing and Weis cabinets afford perfect assurance against leaks at a cost which is well within reach.

Where appearance and harmony with surroundings is of prime importance, the Weisway shower cabinet with its art marble receptor is recommended. For installation in less elaborate surroundings, the WeiSteel Integral cabinet is often used.

We shall be glad to send full details concerning either or both of these easy-to-sell, easy-to-install units. You will be under no obligation in asking for further information.

HENRY WEIS MANUFACTURING CO., Inc.
Shower Cabinet Division
ELKHART, INDIANA
Established 1876

Will Teach at Carnegie Tech.

Carnegie Institute of Technology, Pittsburgh, Pa., has announced the appointment of Clark M. Humphreys as assistant professor of plumbing, heating and ventilating, effective with the beginning of the next school year. He will be in charge of the curriculum of this department under the Theodore Ahrens Professorship.

Clark M. Humphreys

Professor Humphreys is a graduate of the Ohio State University where he studied mechanical engineering. Since graduation he has been in charge of the heating and ventilating and mechanical equipment work for the State Architect's Office of Ohio at Columbus. This position he has held since 1925.

In his work at Carnegie Tech, Professor Humphreys will be assisted by Theodore F. Rockwell, who has been appointed instructor in plumbing and heating. Mr. Rockwell has just completed his work under a research fellowship sponsored by the American Society of Heating and Ventilating Engineers. The study was made at the University of Minnesota where he was awarded the master of science degree. His practical experience has been in the field of plumbing, piping and general engineering construction.

Chicago Plumbers Hold Annual Picnic

The North and West Side Master Plumbers' Pleasure Club of Chicago held its annual picnic at Viani's Grove, near Park Ridge, Ill., on July 15. Well over 200 plumbers, wives, children and guests attended and enjoyed the athletic events and other entertainment provided by the committee. Master plumbers MacKenzie, Markowski, Peterson and Larson were fleet footed racers who won prizes, while Mrs. Russell, Mrs. Weber, Mrs. Diedesch and Mrs. Sauser took honors in the races for master plumbers' wives.

The traditional ball game between the salesmen and the plumbers ended in the traditional way—with the salesmen on the long end of a 7 to 3 score. Plumbers Peterson, Sauser and Bahn starred for the losers, while salesmen Stift, M. Wagner and F. Wagner played errorless ball for the winners.

Henry Swade was chairman of the entertainment committee, with Stift, Matthews, Markowski, Wagner and Heagle assisting.

◆

Columbus Masters Hold Outing

The Master Plumbers Association of Columbus, Ohio, held its annual picnic recently at Oak Park, a short distance from Columbus. The affair started early in the afternoon and the program contained many athletic events and games so that every one present had an opportunity to participate. Prizes were awarded the winners of the various events. Those on the committee were Henry Laplante, J. R. Jacobs and Frank Rorer. William A. Schneider is secretary-treasurer.

KEENEY
No. 100
AIR VALVE

Only after you have once had the satisfaction of using Keeney Air Valves can you appreciate the amount of trouble and money they can save for your customer. Try them on your next job and see for yourself why hundreds of contractors have standardized on them.

The only valve on the market with lock nut feature, holding valve upright at all times.

THE KEENEY MFG. CO.
NEWINGTON, CONN.

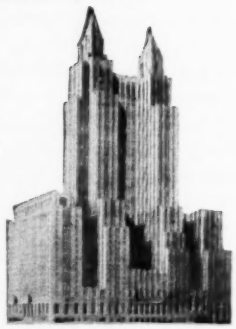
Plenty of Clean Hot Water
for the New
Waldorf-Astoria Hotel

A hotel is judged by its service. And of all the forms of service furnished by a hotel, hot water is among the most important.

In selecting hot-water heaters, the new Waldorf-Astoria Hotel (soon to be opened in New York) followed the precedent set by other fine hotels, apartments, clubs and institutions. They installed

12 *Patterson*
Indestructo *Copper Lined*
HOT WATER HEATERS

These Heaters have extra heavy-pressure steel shells completely lined with *copper*, thus combining the non-corrosive and indestructible qualities of copper with the superior strength of steel. This insures clean hot water, free from rust, and makes these heaters practically everlasting! *Our catalog sent on request.*



Architects: Schultze & Weaver
Consulting Engineer: Clyde R. Place
General Contractors: Thompson-Starrett Co., Inc.
Plumbing Contractors: John McMillan Co., Inc.

The Patterson-Kelley Company
Established 1880
106 E. 40th St., New York, N.Y.

ANSWERED

A few of the Questions of most general interest asked by readers and answered by our engineers

In this issue

1—What Is a Main Vent?
2—Connecting a Hot Water Supply Job
3—The Venting of Sewage Ejectors

—1—

Editor, DOMESTIC ENGINEERING:—Please inform me as to what a main vent is. In my sketch the vertical line A is usually called a main vent, I believe. In my opinion, it is wrong to call this a main vent, because the main vent is the soil or waste stack above the highest fixture connected to it, which extends through the roof.

In our city we call pipe A the vertical main branch vent, which I think describes it better than main vent. I would like to have your opinion.

New York. T. R. P.

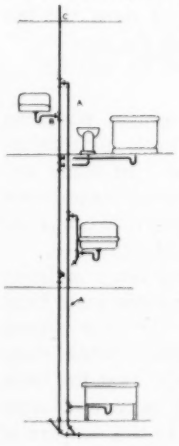


Fig. 1

Fig. 1 shows the sketch submitted by T. R. P.

The vertical vent line marked A we would call a main vent, and we believe it would be universally so called.

We think the confusion comes from the fact that our correspondent apparently calls the pipe BC a main vent. We have never heard it so named. In this particular instance, where the stack is a soil stack, the pipe BC is known as a soil vent. If the stack were a waste stack, BC would then be known as a waste vent.

In our opinion nothing would be gained, and confusion would result if the term "vertical main branch vent" were to be substituted for main vent, in the case of pipe A.

A good definition for main vent is the following:

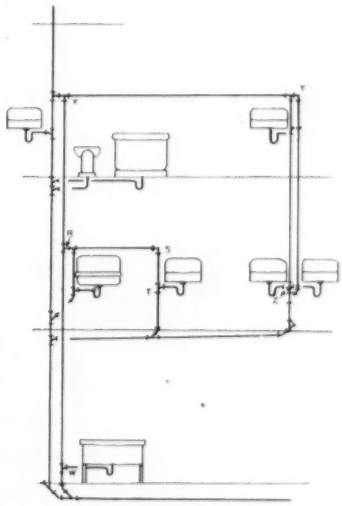


Fig. 2

"A main vent is a line of vent pipe into which branch and fixture vents are connected, and through which each trap vent is supplied with air from the outside atmosphere."

The definition for branch vent is as follows: "A branch vent is a line of vent pipe into which two or more fixture vents are connected. The branch vent connects into the main vent."

Referring to Fig. 2, we would consider XYZ a branch vent, also RST, and XW would be a main vent.

If according to T. R. P.'s idea, the line XW in Fig.

2 were to be called the vertical main branch vent, what sort of vent line could be known as a main vent? The fact that certain vents are known as branch vents carries with it the supposition that where there are branch vents there must of necessity be a main vent line.

If there are several soil and waste stacks in a building there can of course be more than a single main vent. In fact, each stack will have its own main vent.

—2—

Editor, DOMESTIC ENGINEERING:—I am in need of advice on a hot water supply job.

The job consists of a 40-gallon range boiler and a 30-gallon boiler, the two being heated by a small heater.

The smaller boiler supplies the upper floor fixtures and the 40-gallon boiler supplies the fixtures on the lower floor.

Please publish a sketch showing the connections that I will need to make, and give me some instructions.

Michigan. J. R. B.

The job that J. R. B. describes is unusual only in one respect,—most installations of this general character would require both boilers to supply hot water to the entire fixture equipment, whereas in this case one boiler supplies one part of the hot water supply system and the other boiler another part.

J. R. B. has not given any particulars to show what the conditions are that require this division of the work between the two boilers, and we question

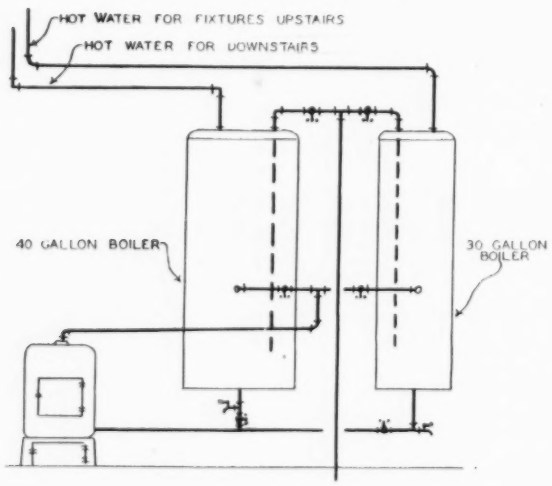


Fig. 1

whether such division is necessary, and whether it would not be possible to supply the entire system from the combined storage of the two boilers. For that reason we are showing two sets of connections, showing both methods of supplying the house with hot water.

The connections in Fig. 1 show the 40-gallon boiler supplying the lower floor and the 30-gallon boiler supplying the upper floor.

Fig. 2 shows both boilers feeding the same supply line which goes to all fixtures on both floors.

In the case of Fig. 1, we think it would be advisable to put a valve onto the flow pipe from the heater to each of the boilers, although as a general thing

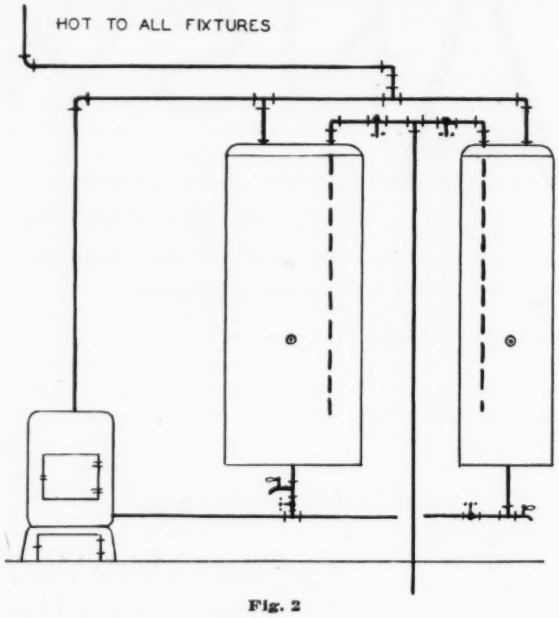


Fig. 2

it is the safest plan to avoid the use of valves on such connections. By means of the valves, the flow of hot water from the heater can be adjusted between the two boilers.

The valves used on the flow and return pipes in Fig. 1 would be required in order to shut off each boiler independently.

—3—

Editor, DOMESTIC ENGINEERING:—We would like some information about venting fixtures in sub-basements, that is, where such fixtures are below the level of the sewers. Of course the sewage from fixtures below the sewer level has to be lifted and discharged into the regular drainage system of the building. The fixtures at the low level have to be vented just the same as fixtures that are above. What we want to know is whether it is all right to connect the vent from these fixtures into the regular vent system, or must the low level vent line be run separately through the roof?

Missouri. M. J. G. and Co.

This question chiefly concerns sky-scraper plumbing installations, and in our large cities such installations are becoming more and more common. In many and most smaller communities the question would never come up in actual practice. Nevertheless any one connected with the plumbing trade should know the practice.

Our strong impression is that a very large majority of the cities of the country allow the main vent from the low-level fixtures to connect into the vent system that serves the high-level fixtures. Nevertheless there are quite a number of cities which insist that the main vent from the low level fixtures shall be carried separately through the roof, and included in this list are at least two of our largest cities.

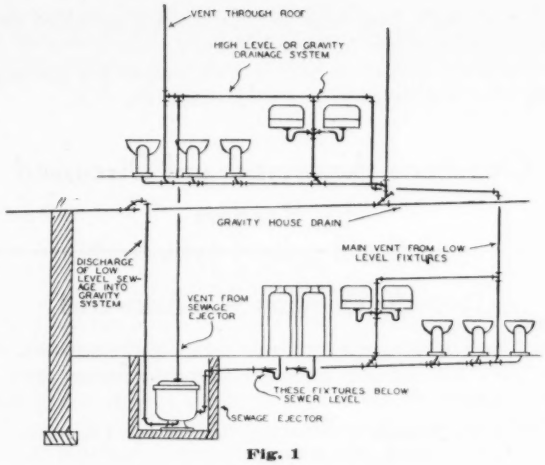

VENT THROUGH ROOF
HIGH LEVEL OR GRAVITY DRAINAGE SYSTEM
GRAVITY HOUSE DRAIN
MAIN VENT FROM LOW LEVEL FIXTURES
DISCHARGE OF LOW LEVEL SEWAGE INTO GRAVITY SYSTEM
VENT FROM SEWAGE EJECTOR
THESE FIXTURES BELOW SEWER LEVEL
SEWAGE EJECTOR

Fig. 1

Fig. 1 shows the generally accepted method, in which the main vent from the low level plumbing system is connected in the vent system of the gravity system. In this illustration a vent is also shown attached to the sewage ejector. Not all cities require this vent.

Fig. 2 shows the low-level venting carried separately through the roof. The vent system is installed to overcome the siphonage of traps, and the necessary air is supplied to the low-level traps whether this venting is connected into the other vent system or is carried separately through the roof.

Compressed air is largely used for operating sewage ejectors, but we cannot see that air pressure into the vent system will not be relieved by one method as well as the other.

As a matter of fact we do not see the necessity of carrying the low-level main vent line separately through the roof. Such a method would often call for the use

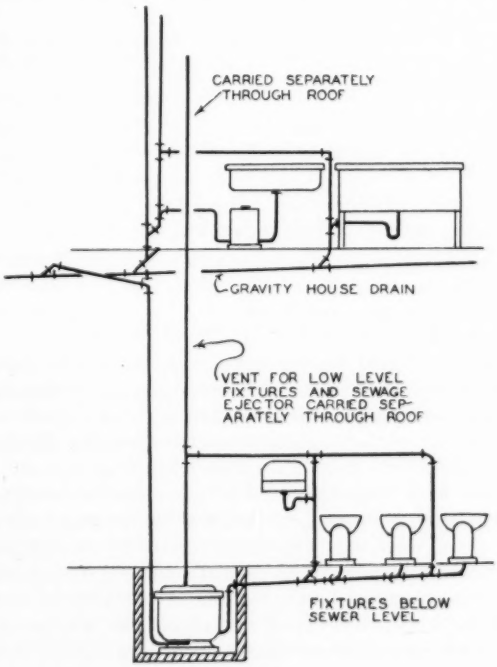

CARRIED SEPARATELY THROUGH ROOF
GRAVITY HOUSE DRAIN
VENT FOR LOW LEVEL FIXTURES AND SEWAGE EJECTOR CARRIED SEPARATELY THROUGH ROOF
FIXTURES BELOW SEWER LEVEL

Fig. 2

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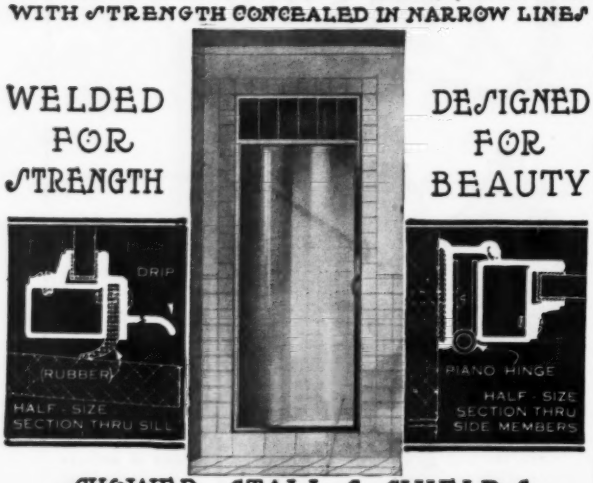

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of exceedingly long lines of pipe, making an added expense which seems to us unnecessary.

We shall be glad to hear any arguments for running low-level vent pipes separately through the roof.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of July 11, and the accompanying answers are by readers:

If the elevation of the sewer opening is 4 ft. 3 in. below the house drain, what is the pitch or fall per foot, if the house sewer is 110 ft. long? Expressed in terms of grade, what does it amount to?

How Would You Answer This Question?

It is desired to install a cooling system in a certain room and it is found that the heat coming in through the walls, windows, ceiling and floor with the temperature desired will be about 200,000 Btu; in this room are 100 persons, 48 100-watt lights and 20 H.P. in motors. If the air can be pumped into the room at 15 degrees below the room temperature, how much air will be required to cool the room? How much more air will be necessary if the air can be supplied at only 10 degrees below the room temperature?

Answers based upon your experience, and suitable, will be paid for and published in the September 5 issue.

THE following are three of the answers received in response to the question on pitch and grade of a sewer.

Pitch—
1—0.463 in. per ft. or 7/16 in. plus.—J. Q., So. Boston, Mass.
2—0.390 in. per ft. or 25/64 in. Grade 4.25 per cent.—A. H. S., Clarks Summit, Pa.
3—0.386–4/11 in. per ft. or 3/8 in. plus.—S. M. P., Pittsburgh, Pa.

The first answer was obtained by dividing the fall in inches by the length in feet. Four ft. 3 in. is equal to 51 in. and this divided by 110 ft. equals 0.463 in. fall per ft. of horizontal distance. This is the pitch of the pipe in inches per foot. The nearest fraction for this decimal is 15/32. However, in practice it is sufficiently accurate to work to sixteenths of an inch. The first answer of 7/16 in. plus per foot is correct. No answer for grade was given.

In the second answer, evidently A. H. S. divided 4.25 ft. (which is the fall given expressed in decimals) by the horizontal distance of 110 ft. This gives 0.386 ft. fall per ft. of horizontal run or roughly 0.390 but he confused his units and called it 0.390 in. per ft. He should have expressed 0.390 in terms of inches by multiplying it by 12 (in. per ft.) which would become 0.463 in. and this expressed in terms of fractional equivalents equals 15/32 in. His answer for grade is not correct either because grade is the vertical rise in feet for every 100 ft. of horizontal run, expressed in per cent. If the given distance had been 100 ft. instead of 110 ft., then his answer would have been correct. In

this case, he should have divided 4.25 ft. rise by 110 ft. of horizontal run which would give 0.0386 ft. per 100 ft. Multiplying by 100 to change it to per cent gives a grade of 3.86 per cent. As a further example, a 100 per cent grade is one where the rise is 100 ft. vertically for every 100 ft. of horizontal run.

As for the third answer, it is apparent that the same error was made as in the case of No. 2.

Sprinkler Piping Designs

(Continued from Page 35)

located on the inside of the sidewalk and the front lawn sprinklers are operated by the valve located on the parkway side of the walk. This of course requires extra piping, but it protects the owner from the spray. In this, as in the first described job, the area to be sprinkled was divided into sections. They are as follows: (1) Parkway, (2) front lawn between the public walk and the building, (3) flower beds between the side of the building and the drive, and (4) the rear lawn and flower garden. The sizes of the pipes are shown on the drawing and the spread of the spray is indicated. One-half, one-quarter and full circle sprays were installed as shown. On the side of the building, the area to be watered is very narrow—about 3 ft. For this strip four strip sprays were installed which have a shallow but wide coverage.

At this time of the year, when you approach a prospect, you are likely to encounter opposition on the grounds that he does not want his lawn cut up. If you do, show him Figs. 9 and 10, which picture a lawn three days after the job was completed. The photograph is unretouched and shows that it is impossible to detect from it where the sod was cut for the trenches. Actually, when the photograph was taken, the replaced sod was slightly lighter in color than the untouched lawn. This remarkable success in transplanting sod is due to the proper and plentiful watering it received from the system after the job was completed. A more important factor is in regard to Mr. McCann's system. He has a definite rule that every piece of sod which is removed during the course of a day's work is replaced over a completed section of the system before the job is left at night. In other words, he does not make all of the trench one day and install the pipes the next and on the third day possibly backfill and resod. He starts no more than that which he can finish during the day. In this way the sod is not out of place for more than several hours.

◆

Committee of Ten Elects Officers

All officers of the Committee of Ten—Coal and Heating Industries—have been reelected for the ensuing year. The officers are: Chairman: H. A. Glover, general sales manager, Consolidation Coal Co., New York, representing the National Coal Association; vice chairman, E. B. Langenberg, president, E. B. Langenberg Engineering Co., St. Louis, representing the National Warm Air Heating Association; treasurer, H. H. Kurtz, manager Chicago branch, Iron Fireman Manufacturing Co., Chicago, representing the Stokers Manufacturers Association and the Midwest Stoker Association; secretary, Lorin W. Smith, Jr., Goshen, Ind., sales promotion specialist for coal heating appliances and accessories.

Where Lots of Water is Needed... and YET AT LOW COST...

HERE'S what you have been looking for in a shallow well system to take care of those jobs where lots of water is needed. It delivers 500 gallons per hour with plenty of water in a gushing stream when the faucets are opened, and it is a model you can *easily sell* because the price is *unusually attractive*.

These are the pump specifications: 500 gal. per hour double cylinder, double-acting, duplex type pump, ½ H. P. Repulsion-Induction Motor, double pole pressure switch, Automatic air volume control, Built-in fresh water valve, ½" Relief valve, 1¼" Suction, ¾" Discharge, 22 ft. maximum vertical lift. Where electric current is not accessible, can be furnished with ½ H.P. gasoline engine drive.

Illustrated above is the complete system which is mounted on either a twelve- or thirty-gallon galvanized tank. Or, pressure tanks of 42 gallons, or larger, are supplied where storage capacity is desired. The built-in Fresh Water valve provides for fresh water direct from the well with all combinations.

There are plenty of other models in the DAYTON line, for deep and shallow wells, with capacities up to 1,473 gallons per hour, starting with the CUB, a popular direct pressure system of 250 gallons per hour capacity at $65.00 list price. If you should not be familiar with all of these DAYTON models, send for a catalog. Use the coupon.

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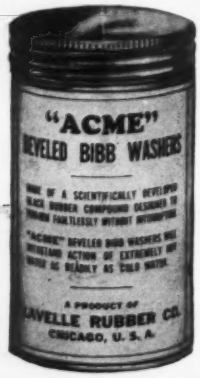

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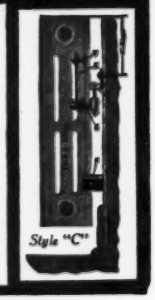

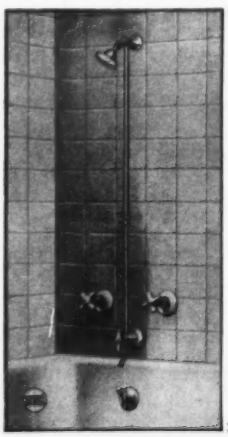

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American Radiator Co. Broadcast Tells Importance of Building Industry

What the falling off in residential construction means to the heating and plumbing contractor is told in the following radio address broadcast recently by the American Radiator Co., New York City, over a nation-wide hook-up:

Very few people realize that the construction of buildings is the largest industry in the country . . . in prosperous times the aggregate volume is eight billion dollars annually . . . it gives employment to more than four million workmen . . . contributes 15 per cent of all the tonnage transported by the railroads . . . circulates through every vein of the economic body and is the bone and sinew of prosperity. . . . When the building industry declines, unemployment rises . . . business sinks and the dark mantle of adversity covers the entire country. . . . A sentence of hardship is pronounced upon everybody . . . both capital and labor are idle . . . and the penalties are boundless. . . . The term of this sentence today will come to an end only when pessimism is transformed into faith and courage, and the normal, needful volume of new construction is resumed.

In 1925 permits were issued in 257 identical cities for 491,200 new homes. This included apartment buildings, each apartment considered as a home.

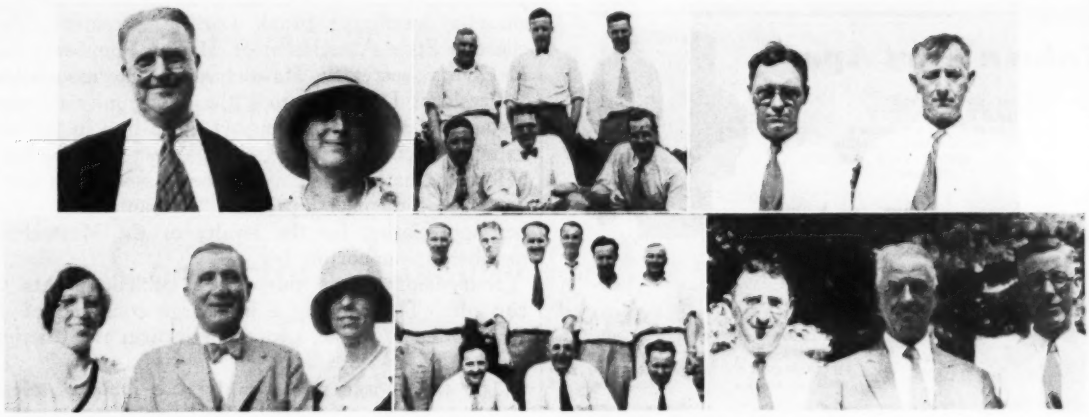
In 1926 such new construction fell to.....	462,000
In 1927 the number was reduced to.....	406,000
In 1928 it was again reduced to.....	388,000
Then in 1929 to.....	244,000
And in 1930 the number was reduced to the almost negligible level of.....	125,000

In five years, therefore, we have had a continuous annual depression in new home construction from 491,000 to 125,000. Even if we go back all the way to the depressed year of 1921, we find that new homes were erected to provide for 225,000 families, . . . but in the past three years alone residential construction throughout the country has declined more than 60 per cent, with non-residential construction showing a decline of more than 50 per cent.

Meanwhile, population has been increasing. We have had nine and one-half million marriages in the past eight years, and the total population has increased over 13,500,000 . . . in fact, there are now more than one million marriages each year, so that today we face a serious shortage of homes in many cities. . . . Fortunately, New York is setting the nation a good example . . . the four Boroughs of Greater New York have increased the building of moderate-priced homes 100 per cent since last December. . . . True, New York is not America, but it is one of America's most important economic barometers, and its message to the nation is that "Home Construction Is the Most Constructive Factor in Restoring Prosperity!"

This is the time of all times to build or remodel.

Costs are at least 25 per cent below normal . . . mortgage loans are now available at low rates . . . and if just a small percentage of those who have the need and the funds were to take advantage of the present low costs of construction and the present low rates of interest, the entire country would snap back quickly into



Top row, left to right: Mr. and Mrs. Richard Lahey; the winning tug-of-war team; Fred Perkins and Neil Jepson, both of Newton. Bottom row: Miss E. Donoghue, P. W. Donoghue, National president, both of Boston; Mrs. Anna Rose; the winning baseball team; Thomas O'Brien, Boston Consolidated Gas Co.; C. M. Hewett, plumbing inspector, Watertown; Parker Walton, Boston Consolidated Gas Co.

prosperity, and in so doing another winter of unemployment would be avoided.

Increased residential construction has led the country out of almost every business depression . . . it will do so again if action can be substituted for inaction.

If you don't plan a new home, remodel the old one with radiator heating . . . it will improve its investment worth, increase its operating economy, and secure your family against the numerous dangers of uneven temperatures.

Newton (Mass.) Association Holds Outing

The Newton and Vicinity Master Plumbers' Association held its annual outing on Wednesday, July 22, at Thompson's grove, Wilmington, Mass. About 125 members and their guests were in attendance. A turkey dinner was served. President Lewellyn Stevens introduced the following guests: National President P. W. Donoghue; National Secretary J. Preston Perham; National Auxiliary President Mrs. J. P. Perham; Mrs. John Murphy of New Bedford, president of the Massa-

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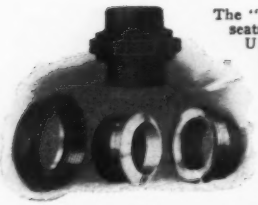

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MALLEABLE, CAST IRON — DRAINAGE, BRASS

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chusetts Auxiliary; Frank Darling, president, Massachusetts State Association of Master Plumbers; Harry McGourty, secretary, Massachusetts state association.

President Donoghue took the opportunity to express his appreciation of the support given him in the recent national election. He stressed the fact that the big job before the national, state and local associations was the increase of membership. Mrs. Perham also expressed her appreciation for the loyalty of the Massachusetts members in supporting her.

Immediately after the dinner, athletic events were run off. The committee in charge consisted of John Ryan, John J. Burke, Leonard Hickman and Charles D. Keiser.

The tug-of-war was won by the jobbers' salesmen over the master plumbers. The baseball game was won by the jobbers over the master plumbers by a score of 10-5.

◆

Trade Associations Register Big Membership Gain for Past Ten Years

A steady growth, which has brought to national trade associations a 25 per cent increase in membership and a 73 per cent increase in income, during the last ten years, is shown in a study just completed by the Trade Association Department, Chamber of Commerce of the United States. This survey covers 416 associations, having a combined membership of over 360,000.

In 1930 the average net decline in income as compared with 1929 was 3 per cent for national associations, somewhat more in the case of state and regional associations. The year 1930 closed with an average net loss of members by 302 national associations of 1 per cent and 114 state and regional associations also of 1 per cent. Estimates for the first quarter of 1931, based on partial returns, record a further average net loss of about one-half of one per cent. On this basis, in spite of these losses, total combined membership is now greater than in 1928.

Some associations record striking gains, but not all fared well. In this composite picture are associations which operated in 1930 on as little as one-third of the 1929 income, and also those which had twice the funds in 1930 as in 1929. The same is true of membership.

Comparing 1930 membership with 1929, of the individual associations 21 per cent have held about steady, 48 per cent show net losses. Net gains in membership are reported by 31 per cent. Gains of 10 per cent to 20 per cent are frequent, while some associations more than doubled their membership. The average change in membership for the entire group of associations is a small loss, namely, 1 per cent.

◆

North Hudson Association Plans Outing

The North Hudson (N. J.) Master Plumbers' Association will hold its annual outing this year at Bellvedere park, Pearl River, N. Y., on Saturday, September 12. A regular dinner will be served, and games for men, women and children will be the order of the day. The committee in charge consists of Daniel Thurnau, chairman, Henry Bunker, Jr., N. Triani, Frank Kasper, Fred. Baker, Thomas Ducate, Alex. Thane, Chris. Werner, Edward Wittreich, T. DePrato and C. Hammerle.

LEO T. PARKER

an attorney at law explains the

Contractor's Liability for Failure to Fulfill Heating or Plumbing Installation Contract

IT IS well settled that a heating or plumbing contractor is liable in damages for failure to fulfill the terms of an installation contract.

On the other hand, various courts have consistently held that where a contractor's completed work is *reasonably* adapted for the purposes for which it is intended, and the defects are such as may be remedied at a reasonable expense without materially interfering with the rest of the structure, the proper measure of damages for which the contractor is liable is the actual expenses necessary to make the work conform with the plans and specifications.

For instance, in the leading case of Toulbee vs. Moore, 51 S. W. 564, it was disclosed that a contractor failed to perform a contract in strict accordance with the terms of the agreement. In order to make his work comply with the contract it was necessary only to make minor alterations. The owned sued to hold the contractor liable for a large amount in damages. However, the court held the measure of damages to be the cost of repairing the slightly defective work, stating the law on this subject in the following language:

"The rule of law is that, where a party (owner) sustains loss by reason of a breach of contract that he is, entitled to be placed in the same situation, with respect to damages, as if the contract had been performed, and that these damages should be limited to such as may be reasonably supposed to have been in the contemplation of both parties at the time they made the contract. . . . It may be true that if a contractor should disregard the plans and specifications under which a building was to be erected, and erect one *substantially* dissimilar, the owner might refuse to receive or pay for the property."

On the other hand, it is important to know that where the defect is a radical deviation from the original contract and repairs may still leave the finished work quite short of the contract, the situation is quite different. In other words, where the defects can be remedied only by reconstructing a substantial portion of the building, the measure of damages is the difference between the value of the building as originally constructed by the contractor and what its value would have been if it had been constructed in accordance with the plans and specifications.

For example, in the leading case of White vs. McLaren, 151 Mass. 553, a contractor failed to perform a contract in accordance with the plans. Since the building could not be altered to conform with the contract the court held the contractor liable, and explained the measure of damages for defective work, as follows:

"Sometimes, the measure of damages is the necessary cost of making the work according to the specifications. If a loss of the use of the premises for a time would naturally be involved, that should be taken into the account. . . . The defect might be of such a character as to diminish the value of the house but little, while to make the work conform literally to the contract would involve reconstruction at unreasonable and disproportionate expense. The question ordinarily is, how much less is the building fairly worth than it would have been if the contract had been performed."

Also, in another leading case of Walter vs. Hagen, 75 N. Y. S. 683, the owner discovered defects in the walls. The building was completed and the owner had been in possession of it for a year when he sued the contractor. In this case, the court held that the measure of the damages was the difference between the value of the building as constructed and what its value would have been if it had been built according to the contract, and not the cost of reconstructing the walls in accordance with the terms of the contract.

Alteration of Written Contract

Generally speaking, a written contract for installation of plumbing or heating cannot be varied by oral statements of either of the contracting parties. However, the terms of a written contract may be varied and the contract reformed by oral statements agreed upon by *all* of the parties to the written instrument. Moreover, the assignees to this contract assume the same obligations as the original signer.

For illustration, in Collins vs. Heckart, 270 Pac. 907, it was disclosed that the owner of land, being desirous of building an apartment house thereon, had plans and specifications drawn up by an architect. The owner of the land then entered into a *written* contract with a general contractor to erect the building. The contract provided that the general contractor should, for the owner, contract with subcontractors to install the plumbing and heating in accordance with the plans and specifications

which provided that the plumbing and heating should be installed in compliance "with the rules and regulations of the plumbing code of the city." Later when the owner received the bids on the plumbing and heating, the former decided the price was too high. Afterward he *verbally* agreed that the installation should be made in compliance with the state building code, if the contract price was reduced.

During the construction of this building, the owner became insolvent and a new owner purchased the building and contract.

The plumbing and heating subcontractors performed their contract by furnishing necessary plumbing and heating material and supplying labor, to conform with the state building code. Subsequently payment was refused the subcontractors on the grounds that they had failed to perform their contract in accordance with the written plans and specifications, which provided that the plumbing and heating should be installed in compliance with the city ordinance.

However, the court held the subcontractors entitled to recover the amount sued for, explaining the law on the subject as follows:

"The law seems to be well settled that the equitable remedy of reformation will not only be allowed as against original parties and their heirs, but will also be granted as against the assignees, creditors, purchasers without notice, and all others standing in privy."

When Contractor Is Not Liable

While a contractor is bound to complete a contract strictly in accordance with its terms, yet where the circumstances are such that the contractor is *mistaken* of his obligations and the owner *actually was or should have been aware* of this fact, the contractor is *not* bound to comply with the terms of the contract.

For instance, in Hammaker vs. Schleigh, 147 Atl. 790, a contractor agreed to alter a building for $23,500, "to the entire approval and acceptance of the owner and his architect." Another portion of the specifications contained the following specification for protection against fire:

"Present building has sprinkler system. This shall be remodeled and continued to take care of the additional spaces. System shall be installed in accordance with the underwriter's rules."

Later the contractor discovered that the pipes and other equipment of the sprinkler system was so badly rusted that the underwriter would not approve their further use. The owner demanded that the contractor supply new material and the architect stated that he would refuse to accept the work, unless the contractor supplied new pipes. The contractor furnished the required new materials and sued the owner to recover extra payment. The higher court held the contractor entitled to a recovery, saying:

"The owner's opportunity for knowing the length of time the system had been in service, its operating condition, and effectiveness, and the other factors affecting the question of its being continued in service in the remodeled system, was superior to that of the contractor. It is but reasonable to believe that the architect in specifying that the sprinkler system should be remodeled did so after investigation, full information, and in the exercise in this employment of the professional skill and knowledge of an expert."

Another important rule is that if the specifications are not complete, or do not explain the contractor's obligations in detail, the owner cannot compel the contractor to perform work not stipulated.

For example, in Wickliffe vs. Cooper & Sperier, 120 So. 52, a contractor entered into a contract with an owner to remodel a building. The contract provided that the work should be done in strict accordance with the plans and specifications, which were made part of the contract. However, the only provision that the specifications contained relative to heating was: "Heating to be furnished by owner and installed by contractor."

After the building was partly completed controversy developed when the owner demanded that the contractor install a special kind of heating system. The latter refused to do so because it was impractical to install the heating equipment at a reasonable cost. The owner refused to continue with the contract and failed to make the agreed payments. The court held the owner liable in full damages to the contractor, saying:

"The work was done, so far as it had progressed, in substantial accordance with the plans and specifications. . . . It is true, she (owner) had a right to cancel at pleasure the building contract she had made, even though the work had already been commenced, but in doing so *she was called upon to pay the contractor for the expenses he had incurred* and such damages as the nature of the case required."

"Satisfaction Guaranteed"

Frequently legal controversies involving plumbers and heating contractors have arisen over the legal meaning of "satisfaction guaranteed" in installation contracts. It is important to know that this term does *not* mean that the owner may refuse to accept the work on the grounds that it is not completed to his own personal satisfaction.

For illustration, in Patry vs. Berick, 147 Atl. 877, it was disclosed that an owner and a contractor entered into a contract by the terms of which the latter agreed to install a heating system. The contract provided that the work was to be performed in "a thorough, substantial and workmanlike manner and *to the personal satisfaction* of the party of the second part or the owner."

The contractor performed the work in a thoroughly workmanlike manner, but the owner refused to accept and pay for it on the contention that he was not satisfied. The contractor filed suit and it is interesting to observe that the Court held the owner bound to accept and pay for the work, stating important law as follows:

"In the ordinary case, where the subject-matter relates to workmanship and quality, the rule of reasonableness prevails. The rule in this class of cases is that, if the work is done in a reasonably satisfactory manner, that is all that can be required, even though the contract provides that it is to be to the personal satisfaction of the one for whom the work was performed."

In another leading case, Hamlet Co. vs. Jones Construction Co., 139 S. E. 771, it was disclosed that a contractor used a cheap grade of material which the architect had failed to specify by its trade-name. The owner sued for damages contending that the contractor had breached the contract.

Since the plans and specifications did not specify the use of a special material, the court held it immaterial whether the contractor used poor or good quality.

Delay When Repairing Defects

Frequently it is desirable that persons, who install defective plumbing and heating equipment, realize that their rights to file mechanic's liens to secure payment may be affected by delays in repairing such defects.

In almost all states the courts have held that the time for filing a mechanic's lien dates from the day *the last labor or material was supplied on the job,* providing the act of furnishing the labor or material was not done for the purpose of extending the lien. So held the higher court in American Plumbing & Steam Supply Co. vs. Alavekiu, 282 Pac. 917.

In this case an owner agreed to pay a contractor $1,300 to install a heating plant in an old dwelling. The system proved defective and the contractor made several efforts to remedy the defects before the plant was satisfactory. Later the contractor was compelled to file a mechanic's lien to secure payment.

The owner attempted to avoid payment on the lien by proving that the contractor had failed to file the lien within the 90 day statutory period after the heating system was installed. The contractor contended that his lien should be valid because he had filed it within the statutory period *after he had succeeded in remedying the defects.* In holding the contractor entitled to a lien, the court said:

"It is evident that plaintiff (contractor) continued in good faith to work upon the heating plant in an endeavor to place the same in such condition that it would do its work satisfactorily. The claim of lien was filed within 90 days from the date plaintiff so ceased to work upon the heating plant, and consequently was filed in time."

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Westerly, R. I., Masters Hold Outing

The Westerly, R. I., Master Plumbers' Association, Ernest E. Boyington, president, held its annual clambake at the Ashaway Fair Grounds near Westerly on Saturday, August 8.

◆

Last Steam Engine Gives Way to Oil in New York City

The last puffing steam locomotive has disappeared from New York City's streets, but a reminder of the old days still exists in the horseman who is required by law to ride in front of the engine and warn of its approach.

One month ahead of schedule the New York Central Railroad has replaced the old steam locomotives along the Hudson River water front with modern, smokeless Diesel-electrics burning ordinary furnace oil. But the lone horseman with a lantern over his arm still cries out to horsemen to hold their mounts when the "Iron Horse" glides into view.

◆

J. W. Shkolnick, plumbing and heating contractor of Centerville, Iowa, has been awarded the plumbing and heating contract for the new school building which is under construction at Jerome, Iowa.

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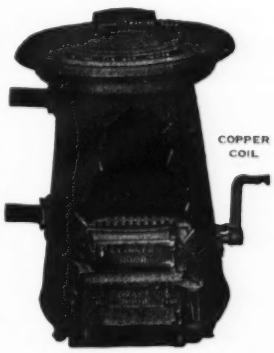

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What Women Are Doing

I WAS lunching at the Palmer House a few days ago. So many women were there that I became curious. It proved to be an unusually large national convention. If it were not for good plumbing and heating, properly installed, these big conventions would be impossible. I remember how the plumbing in this same hotel passed successfully through a severe test a few years ago. Hundreds of midshipmen, in Chicago for the Army-Navy foot ball game, were ordered on returning from the foot ball field to take hot showers. Imagine what it means to have hundreds and hundreds of persons all demanding plenty of hot water at exactly the same time. Yet this hotel's plumbing installation did the trick.

PLUMBING and heating stores do not carry the many hundreds of miscellaneous items which attract people to other stores. But more and more attractive items are finding space in the stores of our industry. Refrigerators, dish washers, driers, washing machines and others are combining with the improved plumbing and heating goods to make these stores attractive both to the window shopper and to the actual customer. The women's instinct for harmony in decorations and arrangements is leading many of our readers to suggest improvements and changes in their husbands' show rooms.

MRS. W. E. McAndrew reports that as president of the National Auxiliary she wrote 794 letters during the past year. After leaving Milwaukee, Mrs. McAndrew stopped off in Chicago and visited the Chicago office of DOMESTIC ENGINEERING. *Immediately on her return to Tampa, Fla., Mrs. McAndrew wrote us — making her 795th letter. We wonder if Mrs. McAndrew has not set a record.*

Mrs. McAndrew Describes Past Year's Work

THE arduous work of the president of the National Auxiliary can readily be seen from the abstracts given below and taken from Past President Mrs. McAndrew's report of the past year's work.

The first duty is to make appointments and have stationery printed. After conferring with the vice presidents and chairman of the board of directors, 200 copies of the minutes of the national convention in Boston were printed. Of these, 186 were sent to state presidents for their locals and the others to local divisions where no state division exists.

At the close of the fiscal year of 1930, $1,715 of the $2,400 necessary to complete the Past Presidents' Scholarship Fund had been subscribed and was in the hands of the national treasurer. According to a vote at Boston, government bonds were purchased with this money. Work carried on during the year brought in enough subscriptions to complete this fund.

Early in the year, Russell G. Creviston, Crane Co., Chicago, wrote to Mrs. McAndrew regarding Miss Mary Ann Abel, whom he said was a speaker of some note, and arrangements were made to have her speak at various meetings.

And then along came "Opportunity," a two leaf folder. Miss Esther Keller and Mr. Flentje are to be congratulated on their efforts to make this booklet beneficial to the auxiliaries. However, it has been necessary to forego the publication of this booklet.

Mrs. McAndrew also sent letters to auxiliaries in states through which National Highway No. 41 extends, asking members to co-operate with Garden Clubs to help beautify this highway from Lake Superior to the gulf.

One to five letters were sent to all conventions, extending greetings and giving information for the enlightenment of the members.

In April a membership contest was sponsored by the national auxiliary in the hope of regaining some of the lost membership. A communication was sent to each state division requesting that the president send a copy to each local in her division. Notices were also sent to auxiliaries where no state division exists.

Three bulletins were issued during the year. In the

last, all state divisions and locals where no state division exists were requested to send a complete list of the names and addresses of their membership. Those complying with this request were: Maine, Ohio, Wisconsin, Michigan, Kansas, Florida, Missouri, Massachusetts, New Jersey, Connecticut, and Washington, D. C. Local auxiliaries: Wilmington, Del.; Philadelphia and Pittsburgh, Pa.; St. Paul, Minn., and Nashville, Tenn.

A recommendation is made that all names of members upon which per capita tax is paid be sent in duplicate by the local treasurer to the state treasurer at the time the national dues are paid, and the state treasurer send one of these lists accompanying the dues to the national treasurer, retaining the other copy for her own files. In this way an exact list of the membership will be kept at the national treasurer's office.

Election to the office of president of the Florida State Auxiliary prompted the resignation of Mrs. Frank Williams, Tampa, Fla., who had served almost two years as national corresponding secretary. Mrs. Lee Phillips, Lakeland, Fla., was appointed to fill the term.

Certificates have been issued to auxiliaries in the following cities: So. Shore, Racine, Wis.; Green Bay, Wis.; Manitowoc, Wis.; Sheboygan, Wis.; Muskegon, Mich.; Fort Wayne, Ind.; Milwaukee, Wis.; LaCrosse, Wis.; Indianapolis, Ind.; New Brunswick, N. J., and Rahway, N. J. Some of these are new auxiliaries, while others had been organized for some time, but no certificates issued. No certificates have been surrendered.

During the year, 794 letters were written.

As a protection to the national treasury, as well as for the treasurer, Mrs. Robert Liss requested that a bond be issued in the sum of $3,000. This was done in September at a cost of $15.00 to the auxiliary.

In an effort to organize new auxiliaries and extend the work into new territory, letters were written to interested parties in the states of Texas, Pennsylvania, and California. Local auxiliaries who received letters were Phoenix, Ariz.; Great Falls, Mont.; Atlanta, Ga., and Erie, Pa.

Sincere thanks are extended for the splendid co-operation given the president, to the entire membership of the National Auxiliary, to the officers and members of the official family, to George Drake, president, and the National Association of Master Plumbers, to the trade papers, to the ladies of Milwaukee, and last but not least, to Mrs. E. D. Hornbrook, who has never failed to give her splendid advice when it was solicited.

Winners of Membership Drive Are Announced

Mrs. W. E. McAndrew of Tampa, Fla., past National Auxiliary president, reports that the membership drive conducted prior to the national convention at Milwaukee, Wis., was won by the Connecticut division, Mrs. Howard Bryant, president. The winning auxiliary among those where no state organization exists was Denver, Colo., Mrs. Guy Stocking president. Connecticut increased its membership from 56 members in 1930 to 74 in 1931. Denver had 10 members in 1930 and 23 members in 1931. Each of these organizations were rewarded for their success in the campaign.

Pasadena Auxiliary Holds Picnic

The Pasadena, Calif., Women's Auxiliary enjoyed a picnic on July 9 with 25 in attendance. The outing was held at Brookside Park. The committee in charge consisted of Mrs. W. H. Swihart, auxiliary president, and Mrs. A. C. Hanson, secretary. Two members, Mrs. George Shirk and her mother, Mrs. Ada Walker, are moving to El Monte, Calif.

How Many Engineers Can Specify The Correct Kind Or Size Grease Catch Basin That Will Function Satisfactorily?

Dehn's "**Centrifugal**" Double Trapped Water Cooling Grease Catch Basins will retain and congeal the grease, fats and oils in the basin, tested two hundred fifty (250) pounds cold water pressure, permitting the main cold water supply to connect direct with the water cooler and the outlet with all the faucets and fixtures, including the hot water storage tank, on the premises. Furnished in seven sizes for every type of installation.

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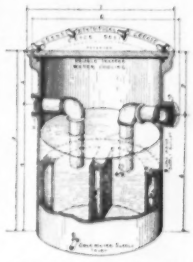

Fig. No. 150. (Patented and Patents Pending).

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FOR tanks with supply close to corner. You don't touch the supply connection when you renew the bronze seat. The refill tube neither splits nor corrodes. A quality fitting throughout. Write for folder on complete line.

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ASK FOR THEM BY NAME
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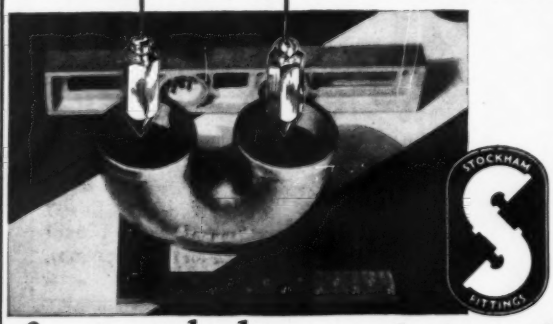

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New Trade Literature

Bulletin About Underfeed Stokers

The Simplex Oil Heating Corporation of New York, N. Y., has just issued its bulletin No. 101, illustrating and describing underfeed stokers for all types of boilers from 50 to 500 h.p. These stokers are of the hydro-electric type, and are described as rugged, compact, designed to withstand hard usage and operate over a long period of years at a low maintenance cost.

Book on Alloy Steels

The Subsidiary Manufacturing Companies of the United States Steel Corporation have prepared for distribution a very attractive book of about forty pages called "Stainless and Heat Resisting Alloy Steels." The book measures eleven by eight inches and is printed on a high grade enameled stock. The cover is of an attractive modernistic design. The book contains a great deal of valuable information pertaining to the characteristics of the various alloys.

"The Silvery Sink"

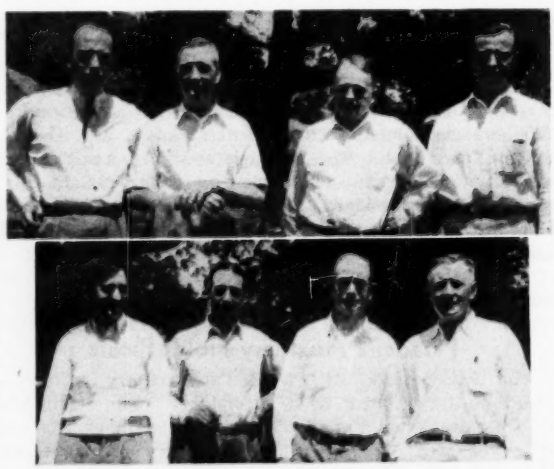
The International Nickel Co., Inc., New York City, distributed at the recent convention of the National Association of Master Plumbers in Milwaukee, Wis., copies of the first edition of its new publication called "The Silvery Sink." The paper is devoted to material concerning the company's line of monel metal sinks, including a complete description of the line.

Pamphlet of Warren Webster & Co.

Warren Webster & Co., Camden, N. J., has distributed to the heating trade a pamphlet containing complete information concerning the principle of operation of the boiler protector of its manufacture. The pamphlet is in the form of a display, printed on heavy paper and so designed that it may be hung on the wall of the contractor's office. A large illustration clearly shows the mechanical features of the product.

Booklets on Sale of Gas Appliances

The Adams Bros. Mfg. Co., Inc., Pittsburgh, Pa., has published four booklets on the sale of gas appliances. The titles of these booklets are "Selling Direct to the Home," "Now—Build Gas Load with Automatic Space Heaters," "Solving Venting Problems to Promote Better Gas Heater Sales" and "A New Opportunity for Merchandisers of



Top row, left to right: H. K. Browning, W. J. Turner, R. A. Hudson and C. F. Censer. Bottom row: P. F. Scott, A. G. Atwood, A. Daiziel and J. J. McLeod. Photos taken at recent golf tournament of Plumbing and Heating Club of San Francisco, Calif.

Household Specialties." These are well written and should prove of great value to everyone interested in selling gas appliances.

Book on Selling Gas Heating

Roberts-Gordon Appliance Corp., Buffalo, N. Y., recently prepared for distribution a book entitled "Selling the Home Heating Market." The book contains much valuable information on the matter of selling gas heating to the domestic market.

Folder of Goetze Gasket & Packing Co., Inc.

Goetze Gasket & Packing Co., Inc., New Brunswick, N. J., has prepared for distribution a folder describing its new type valve disc, designed for use on renewable disc type valves. The folder is printed in two colors and contains illustrations of the product.

Folder of Worthington Pump & Machinery Corp.

A folder has been distributed by Worthington Pump & Machinery Corp., Harrison, N. J., containing descriptive matter dealing with the new type of centrifugal pump recently added to its line. The folder contains a detailed drawing of the pieces of equipment, as well as a complete rating table.

Stuffer of H. A. Thrush & Co.

H. A. Thrush & Co., Peru, Ind., has distributed an envelope stuffer containing descriptive material pertaining to its line of pressure reducing valves for domestic water supply systems.

Pamphlet on Cleaning Heating Plants

An envelope stuffer recently distributed by the Air-O-Vac Cleaner Mfg. Co., Milwaukee, Wis., gives complete information concerning the power suction heating plant cleaning apparatus of its manufacture. The pamphlet contains several illustrations showing how the apparatus is used.

Left to right: Martin A. Rooney, vice president, Pierce, Butler & Pierce Mfg. Corp., New York City; P. H. Meyer, Jr., Louisville, and F. A. Clegg, president of Louisville association. Photos taken at the annual convention of the Heating and Piping Contractors' National Association, held recently at Louisville

Booklet of Hoffmann & Billings Mfg. Co.

The Hoffmann & Billings Mfg. Co., Milwaukee, Wis., has prepared for distribution an attractive pamphlet containing descriptive material on its line of shower mixer valves and surgical lavatory supply controls. The pamphlet contains many illustrations showing the construction and operation of these devices. It is printed in an attractive manner and contains descriptive matter of several other of the company's items as well.

Folder of The Borden Co.

The Borden Co., Warren, Ohio, recently mailed out a folder containing information about the line of pipe tools of its manufacture. The folder contains illustrations of the various items, along with written descriptive matter for each item. A table of list prices and ordering data is included.

Best for Pipe Lines—

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PIPE COVERING

Cover Brine Pipe Lines and Cold Water Pipe Lines with this resilient, long lasting material —made of 100% pure sterilized cattle hair. It prevents freezing—prevents condensation on pipes. It means greater efficiency — greater economy. Write for sample and see for yourself.

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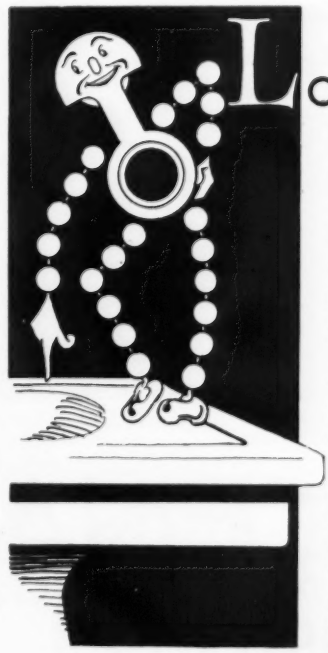

LOOK IN EVERY BASIN « « «

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FOR PLUMBING
Trade Mark Reg. U. S. Pat. Off.

TABER SUMP PUMPS IN GENERAL USE

Built for 5 ft. pit, Single and Duplex Units

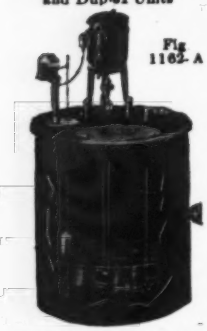


Fig. 1162-A

The larger Taber Sump and Sewage Pumps are being specified and used on jobs requiring high grade equipment. Following are single unit sizes in general use. . . . 1750 R.P.M. 60 Cycle and Direct Current.

Type	G.P.M.	Head	Outlet, in.	Plate in.	H.P.	Wgt lbs.
AL-25-2	25	20	1	24	½	272
AL-50-2	50	20	1½	32	¾	350
AL-75-2	75	20	1½	36	1	436
AL-100-2	100	20	2	36	1½	481
AL-150-3	150	20	2½	36	2	607
AL-200-3	200	30	3	36	3	675
AL-300-3	300	30	4	36	5	772

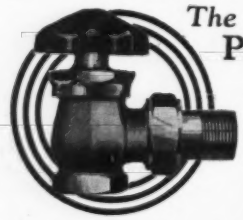
Write for complete Bulletin 88-629

TABER

TABER PUMP CO. Est. 1859

Sold with and without tank

Taber Pump Co., 290 Elm St., Buffalo, N.Y



The Packless Radiator Valve

. . . impervious to deterioration, wear or cracking

The Marsh System Unit Radiator Valve is constructed upon principles which have proved to be as sound as they are new. Perfectly adapted to meet the requirements of any vacuum, vapor, steam or forced hot water heating systems. Write for Bulletin No. 150.

JAS. P. MARSH & CO.

(Division of Commercial Instrument Corp.)

Home Office: 2079 Southport Ave. CHICAGO

Sales Offices in principal cities

In Canada: The James Morrison Brass Mfg. Co., Ltd., Toronto

SPENCER AUTOMATIC HEAT

The Lowest Cost Heat You Can Buy. Burn low-cost No. 1 Buckwheat anthracite or small size coke.

Write us for the Spencer plan which you can use to build more sales. Spencer Heaters save money for your customers and make money for you.

SPENCER Magazine Feed HEATERS for steam, vapor or hot water

SPENCER HEATER COMPANY
Williamsport, Penna.

Spencer Heater Co. of Canada, Ltd., Toronto, Ontario

RAVENA

IRON PIPE FITTINGS

1903-1931

OVER A QUARTER CENTURY OF SERVICE

RAVENA-IRON-COMPANY

RAVENA N.Y.

Large Construction Projects

Even though new construction is at a low ebb compared with recent peak years, the fact remains that new projects are being started every day. Listed below are just a few of the larger building operations, either contemplated or only recently started.

Philadelphia, Pa.—Plans are being prepared by Peter F. Getz for a five story addition to St. Mary's hospital.

Chicago, Ill.—Plans are being completed by Holabird and Root for a building at 11 N. Wabash avenue, for the Commonwealth Edison Company.

Falfurrias, Tex.—W. A. Sidley, Edinburg, Tex., has been awarded the general contract for a four story hotel building in this city, and a similar structure of five stories in Alice, Tex.

Baton Rouge, La.—Construction was started on the women's dormitory at the Louisiana State University, which initiates a building program of $2,000,000 by the university.

Lincoln, Neb.—Contract for the new Bonacum Institute has been let to W. J. Assennacher, on a bid of $350,000.

Bessemer, Mich.—The general contract for a $90,000 high school addition for this city was recently awarded.

Maywood, Ill.—The Jefferson Electric Company is planning construction of a $750,000 factory on 25th avenue, in this city.

White Plains, N. Y.—Plans for a six story apartment house were filed here recently. Cherry and Matz are the architects.

Desplaines, Ill.—W. J. Lynch Company has been awarded the general contract for a gymnasium for St. Mary's training school.

Chicago, Ill.—Ground has been broken for the new $1,000,000 home of the Chicago Historical Society.

Chicago, Ill.—Contracts have been awarded to the Avery L. Brundage Company for addition to the Maurice L. Rothschild store, amounting to $250,000.

Albuquerque, N. M.—A new hotel is to be erected here at a cost of $350,000. Throst and Brittelle of Albuquerque are the architects.

Rumford, Me.—Bids are being submitted for the new Community hotel. Harry S. Coombs, Lewiston, is the architect.

Chicago, Ill.—The general contract has been awarded to Gust Carlson, Chicago, for the new field house for Paul Revere Park which will cost $80,000.

Seattle, Wash.—Plans have been completed by Bain & Pries, Seattle architects, for a $100,000 community hotel tentatively contemplated on Lake Chelan.

Caldwell, N. J.—Melvin H. Courter is planning a two story building at a cost of $75,000 at Bloomfield and Small avenues.

Hot Springs, Ark.—Plans are being prepared by George R. Bartling, Inc., architects, Paul Brown building, St. Louis, Mo., for an $850,000 structure in this city.

Forest Park, Ill.—Buchholz, Haas & Schwebel have been awarded the general contract for the Emerson School on a bid of $113,581.

New Martinsville, W. Va.—Plans are progressing for the proposed new $75,000 post office building here.

Caro, Mich.—Plans have been completed by William H. Kuni, Detroit, for the $200,000 County Court House in this city.

New Contractors and Incorporations

Seattle, Wash.—The Ashwell, Twist & Cook Co., engaged in the plumbing and Heating business, has changed its name to Ashwell-Twist Co.

New York City—The Shapiro Plumbing and Heating Corporation has been organized and incorporated, with a capital of $5,000, to establish and operate a plumbing and heating engineering and contracting business. The new firm is represented by H. A. Goidel, 291 Broadway.

Aberdeen, Wash.—The Barton Plumbing & Heating Co. has been incorporated, with a capital of $4,000, by Mike Clausen and Grace Barton, and will conduct a contracting business at 315 East Market street.

San Francisco, Calif.—The Bertram Plumbing & Heating Contractors have engaged in business at 726 Bryant street.

Yakima, Wash.—The Clark Plumbing & Heating Co. has been incorporated, with a capital of $2,000, by James G. Saunders and Alfred Dahl.

Detroit, Mich.—Samuel Davidson & Co., Inc., 13231 Livernois avenue, has been chartered to conduct a plumbing and heating business, with a capital stock of $2,000.

Grand Island, Nebr.—E. O. Olson, formerly with the Kelly Plumbing Co., has engaged in the plumbing and heating business for himself at 517 West Eighth street, in this city.

Milwaukee, Wis.—Emil H. Doubek, Inc., has filed articles of incorporation to conduct a plumbing, heating and ventilating business. Capitalization is 500 shares at no

Top row, left to right: A. Lamm, W. R. Pearce and Stuart Greenberg. Middle row: E. J. Kraus, Jack Camp, R. P. Olsen and Charles W. Higgins. Bottom row: H. Porter Wilson, D. Turner, H. W. Greeger and Thomas J. Leary. Photos taken at recent golf tournament of the Plumbing and Heating Club of San Francisco, Calif.

$3,000 RING
found in bath tub

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 25

UNITED HOTELS

NEW YORK CITY'S *only United* . . . . The Roosevelt
PHILADELPHIA, PA. . . . . The Benjamin Franklin
SEATTLE, WASH. . . . . The Olympic
WORCESTER, MASS. . . . . The Bancroft
NEWARK, N. J. . . . . The Robert Treat
PATERSON, N. J. . . . . The Alexander Hamilton
TRENTON, N. J. . . . . The Stacy-Trent
HARRISBURG, PA. . . . . The Penn-Harris
ALBANY, N. Y. . . . . The Ten Eyck
SYRACUSE, N. Y. . . . . The Onondaga
ROCHESTER, N. Y. . . . . The Seneca
NIAGARA FALLS, N. Y. . . . . The Niagara
ERIE, PA. . . . . The Lawrence
AKRON, OHIO . . . . . The Portage
FLINT, MICH. . . . . The Durant
KANSAS CITY, MO. . . . . The President
TUCSON, ARIZ. . . . . El Conquistador
SAN FRANCISCO, CAL. . . . . The St. Francis
SHREVEPORT, LA. . . . . The Washington-Youree
NEW ORLEANS, LA. . . . . The Roosevelt
NEW ORLEANS, LA. . . . . The Bienville
TORONTO, ONT. . . . . The King Edward
NIAGARA FALLS, ONT. . . . . The Clifton
WINDSOR, ONT. . . . . The Prince Edward
KINGSTON, JAMAICA, B.W.I. . The Constant Spring

UNITED HOTELS

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

American

CAST BRASS SOLDER BUSHING

It's equipment of the kind American Sanitary is famous for that makes your work easier and more satisfactory. American Goods are better. Order them from your jobber.

NO. 730

"The Difference Between An Old House and A New One Is Plumbing!"

AMERICAN SANITARY MFG. CO.
ABINGDON » » ILL.

SARCO Heating System

is made with a heaping measure of quality and sold at the lowest possible price for equal quality.

If you want quality in anything, you have to pay for it, and you know that buying quality is the only true economy.

In the Sarco Heating System you get the best of engineering practice in design—the highest order of materials and workmanship—and proven ability to meet and satisfy every condition of long, hard service. Write for Catalog M-40.

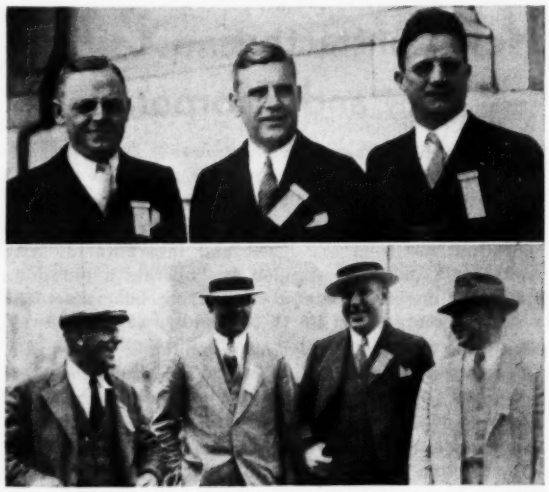
SARCO CO., Inc.
183 Madison Ave. New York, N. Y.
Branches in Principal Cities

"AMERICAN SEAL"

PIPE JOINT CEMENT
Dry or Plastic • Gray or Graphite

No more leaky installations! "American Seal" Pipe Joint Cement eliminates the possibilities of leaks. It is easy to use and will assure against leakage for all time. It will not dry out and what is more, it is unaffected by heat or cold. Be on the safe side all the time—use "AMERICAN SEAL" on every job.

William Connors Paint Mfg. Co.
TROY N. Y.



Top picture, left to right: Joseph G. Hildebrand, secretary-manager, Plumbing and Heating Industries Bureau, Chicago; C. W. Wanger, president, Woodward-Wanger Co., Philadelphia, Pa., and E. B. Kleine, national director, Cincinnati, Ohio. Bottom row: George G. Jones, Chattanooga; B. B. McCoy, Crane Co., Chattanooga; W. A. Engert, Knoxville, and J. L. Peebles, Memphis. Photo taken at the convention of the Associated Master Plumbers of Tennessee, held recently at Nashville

par value. Incorporators are E. H. Doubek, E. Doubek and E. Hiltrop.

Jamaica, N. Y.—Joseph Mason and associates have organized the firm of Joseph Mason, Inc., with a capital of 100 shares of no par common stock, to establish and operate a plumbing engineering and contracting business: M. C. Schneidkraut, local attorney, represents the new firm.

New York City—The Mechanical Plumbing Corporation has been chartered, with a capital of $5,000, to establish and operate a plumbing engineering and contracting business in Manhattan. The new concern is represented by G. Baldwin, 90 Rivington street.

Milwaukee, Wis.—Laas Plumbing and Heating Company has been incorporated, with a capital of 100 shares at $100 each. The firm will operate a plumbing and heating contracting business. Incorporators include Mrs. A. J. Laas, A. J. Laas and A. H. Laas.

Bridgeport, Conn.—George L. Beitner, Jr., Inc., was incorporated recently to conduct a plumbing, heating and sheet metal business, with a $5,000 capital. The incorporators are: G. L. Beitner, Jr., G. L. Beitner, Sr., and H. L. Tygesson.

Left to right: H. M. Mann, W. E. Wilmot and President L. H. Tyler, all of Santa Monica Bay; William F. Serpa, president, San Jose association; F. P. Brady, manager, East Contra Costa association; James F. Mauzy, Walnut Creek, secretary, Northern California Federation of Plumbing and Heating Industries. Photos taken at the annual convention of the California State Association of Merchant Plumbers, held recently at San Diego

Pipe —— Lines
Connected by LyT

We can not too strongly advise the readers of this happy little column that, in weather as warm as that in which this is being written the best thing to do is to forget the heat. Don't talk about it—don't think about it.

SOME MORE ADVERTISING

Judge: "What's the charge?"
Victim: "He stole my Austin, the pickpocket!"

IT'S SAID AND DONE.

Remember—don't think about
the heat,—don't mention it.

IT'S A WISE CHILD . . .

The superintendent of Sunday School tells how, some years ago, he had the idea of having each one of his boys and girls recite an appropriate text as he or she dropped a contribution into the box.

The first boy said, as he put in his mite: "The Lord loveth a cheerful giver."

The second one said: "He that giveth to the poor lendeth to the Lord." And there were a number of others, until he reached a boy who said:

"A fool and his money are soon parted."

LEIGHTON'S GLOOM CHASER.

Just by way of a reminder—
forget the heat. Don't talk
about it.

ART APPRECIATION

An Iowan has informed us of an incident he noted during a recent visit to Chicago.

According to the tenets and standards of some eminent Europeans, and some not so eminent, he observes, the American Magazine average American is distinctly below par in appreciation and understanding of art. But watching and listening to Americans as they stand before a product of American genius provokes a polite laugh up the sleeve at Continental tenets and standards. Appreciation is not below par, rather it is unique and typical of the age in which we live.

Our reporter was in the usual crowd of sightseers, suburbanites and park loafers that was watching Buckingham Fountain perform its wonders on a cool evening (you remember that one) a few weeks ago. All the colors of the spectrum merged and fused in harmonious shades and combinations; little drops of the rainbow shot out from ten thousand little holes under and over the surface of the pool. As the water tumbled down over the tiers reflecting the hundred concealed lights, the onlookers gaped in silent wonder, awestruck by the splendor of the fountain.

Directly in front of our reporter a man and his wife had stood motionless and speechless for more than an hour. The man's eyes seldom flickered, his face immobile. Never so much as turning his head, he gave the appearance of one lost in thoughts of something very far away.

The lights suddenly grew brighter and changed more rapidly; the water shot higher and tumbled faster. It was the final. After a wild blaze of rushing red the lights slowly faded out and the crowd began its exodus. For a moment the man stood as though transfixed, then, turning to the woman he said, "Gawd! What plumbin'!"

THE CHICAGOAN.

IS THIS QUITE ACCURATE?

Mary had a little lamb,
One day she clipped its tresses;
And found she had sufficient wool
For fifteen modern dresses.

P. G. N., Chicago.

And as a last reminder, don't talk about the heat. Anyway, it isn't the heat . . . . . .*

L Y T

* EDITOR'S NOTE: The sentence was never finished because its writer was, rather suddenly.

NIEDECKEN SHOWERS

Trade Mark Reg. U. S. Pat. Office

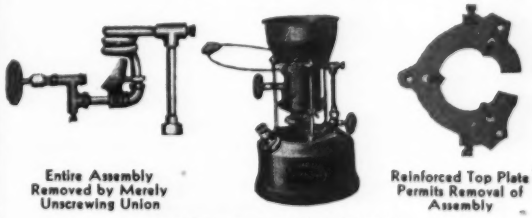
EASY-CLEAN SHOWER HEAD

LEAK-PROOF SHOWER STALL

The Niedecken Shower Stall is made of continuous 1/8-inch copper bearing steel which with the riser is welded to the bottom of the stall—making it positively and permanently leak-proof. The face of the Niedecken Shower Head is easily removed by simply loosening 3 screws and replaced as easily; a set of notches guiding for proper placement and alignment as when originally assembled. This permits complete cleaning of inside of shower head: Easy-clean and always clean shower head. Complete Niedecken Shower details sent on request. Write Dept. D.E.

HOFFMANN & BILLINGS MFG. CO.
MANUFACTURERS SINCE 1855.
MILWAUKEE, U. S. A.

A New Style Furnace for Plumbers



Entire Assembly Removed by Merely Unscrewing Union

Reinforced Top Plate Permits Removal of Assembly

40-A Pump Furnace with 6½" Shield
42-A Pump Furnace with 9¼" Shield
Patented—Additional Patents Pending

New Features on these Furnaces:

Flame control valve—flame is always under perfect control of the pressure. Flame can be turned down to any size desired. This valve does not close off completely; therefore, burner assembly is not charged with gasoline when furnace is not in use, or with gas vapor when starting furnace.

Cleaning needle inserted into flame control valve—orifice cleaned quickly by closing and opening valve.

Also furnished with reinforced cut-out top plate and union which permit plumbers to remove the complete burner assembly quickly by merely unscrewing the union.

OTTO BERNZ CO., INC.
NEWARK • NEW JERSEY
Stocks in Newark, N. J., San Francisco, Calif., New York City

DONNELLY
Outside Spring
Relief Valve

DONNELLY PRODUCTS

safeguard the home

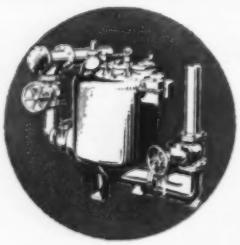
Dependable valves for
Pressure Relief
Temperature
Vacuum

Write us for complete details.

DONNELLY VALVE SALES CORP.
MALDEN, MASS.

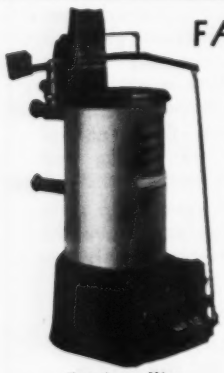
ROBERTSHAW THERMOSTATS

For authentic advice on your temperature control problems, write the Robertshaw Thermostat Company, Youngwood, Penna.



Jennings Pumps

JENNINGS PNEUMATIC SEWAGE EJECTOR for lifting unscreened sewage from deep basements. Capacities up to 1500 g. p. m. Heads up to 50 ft. Write for Bulletins 103 and 108. The Nash Engineering Co., 41 Wilson Road, South Norwalk, Conn.



Cut Away View

FASTER HOT WATER

Copper Coil, Coal Burning National Tank Heater

Copper coil provides faster heating. No corrosion or cracked castings. No rusty water—bronze fittings. Saving in fuel over other types of heaters. Abundant hot water 24 hours a day. Aqua-Matic regulator outfit maintains steady fire with little attention. Well built, efficient. Connects to present tank. Three sizes. Your customers will be thoroughly satisfied. Write for Bulletin 52-A.

NATIONAL PIPE BENDING CO.
Est. 1883
174-H River St., New Haven, Conn.
Boston New York Philadelphia

Bath a Day Movement

A LETTER from J. E. Nicely, secretary-manager of the Master Plumbers' Association of Reading, Pa., says: "Kindly send us a couple of copies of the booklet, 'The Story of the Bath,' and if you can furnish in quantities, quote prices.

"We have in mind several ideas of distributing these, and thought just for the present we could use a few for distribution at the various city play-grounds."

There is a brand-new thought for the distribution of an educational booklet such as "The Story of the Bath." The children can not be reached in the schools during the summer; but on the playgrounds, where their athletic ambitions are being developed, they will undoubtedly give a real welcome to a humorous, interesting bit of copy that will help them to realize the value of frequent bathing to budding athletes.

It will be interesting to watch the progress of Mr. Nicely's plan. Those contractors who have never read "The Story of the Bath" may secure a complimentary copy by writing DOMESTIC ENGINEERING, 1900 Prairie ave., Chicago. We will be glad, also, to send our twenty-minute program for use at Rotary, Kiwanis, Lions and other such club meetings.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Method is the offspring of punctuality.

* * *

The loveliest bird has no song.

* * *

Some things in moderation are worse than others in excess.

* * *

Always look on the bright side—but walk on the shady side.

* * *

Money talks, but it never gives itself away.

* * *

Wrath is usually found in family jars.

* * *

A cannibal is one who loves his fellow man.

* * *

If mistakes were crimes, most men would be in jail.

* * *

When a man is too busy to be happy he is to be pitied.

* * *

Many of our fond hopes are inflated with hot air.

* * *

Luck consists of having what some other fellow wants.

* * *

It is never too late to break yourself of a bad habit.

◆

New Floor in Home

Home owners who have installed automatic heating equipment since last spring are in a position to take advantage of another floor in their home, says the Oil Heating Institute. The removal of coal, ashes and other sources of dirt from the basement leaves that space as clean as any other part of the house. For the guidance of those who have not decided what use to make of this space, the Institute has prepared a booklet called "A Few Steps to Comfort."

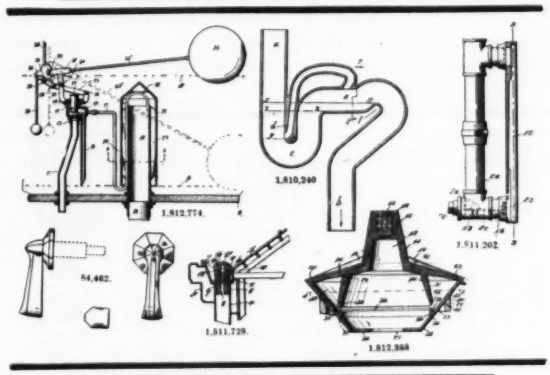
PATENTS

Plumbing Department

1,812,774. Water Closet Valve. William J. Collison, Bakersfield, Calif.

1,810,240. Sanitary Liquid Trap. Robert Arthur Greenwood, Chelsea, London, England.

1,811,202. Drain Device. Thomas Gordon Ladshaw, Spartanburg, S. C.



84,462. Handle for Flush Tanks or the Like—Ornamental Design. Herbert D. Clemmons, Sturgis, Mich., assignor to Scovill Manufacturing Company, Sturgis, Mich.

1,811,728. Drainage Device for Roof Gutters and the Like. Robert McKee, Philadelphia, Pa.

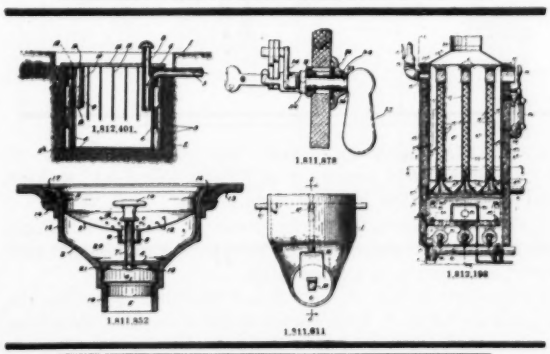
1,812,388. Flush Valve. Jack E. Walker, Los Angeles, Calif., assignor to Long-Turney Corporation, Los Angeles, Calif., a Corporation of California.

1,812,401. Septic Tank. Albanus W. Goulding, Trenton, N. J., assignor of one-half to Clifton Reeves, New York, N. Y.

1,811,878. Outlet Valve Operating Mechanism for Flushing Tanks. Andrew F. Curtin, Medford, Mass.

1,811,852. Strainer. Julius S. Judell, Shorewood, Wis., assignor to Milwaukee Flush Valve Company, Milwaukee, Wis., a Corporation of Wisconsin.

1,811,611. Floor Drain. Frank W. Carlson, Chicago.



1,812,198. Apparatus for Heating or Vaporizing Fluid. Mark M. Clayton, La Porte, Ind., assignor to Bastian-Morley Co., La Porte, Ind., a Corporation of Indiana.

1,811,667. Flux for Soldering. James H. Gravell, Elkins Park, Pa., assignor to American Chemical Paint Company, Ambler, Pa., a Corporation of Delaware. A flux

REAL SALES BUILDERS

NIBCO Tank Trims and Copper Tube Fittings have been helping aggressive plumbers to make sales in spite of the so-called business depression. Write for complete information about this profitable line. Ask for Bulletin A-200.

NORTHERN INDIANA BRASS COMPANY
Elkhart, Indiana

REPRESENTATIVES WANTED

An exceptional opportunity is offered manufacturers' agents, live heating contractors and heating sales firms, in REZNOR AUTOMATIC GAS FIRED WARM AIR HEATING APPLIANCES.

The finest line of modern, fully engineered equipment ever offered the trade—for any requirement from an office to an airplane hangar! Write us today for complete information.

Gas Heating Appliances REZNOR for Forty Years

REZNOR MFG. COMPANY » « Mercer, Pa.

ACHESON BRASS FITTINGS

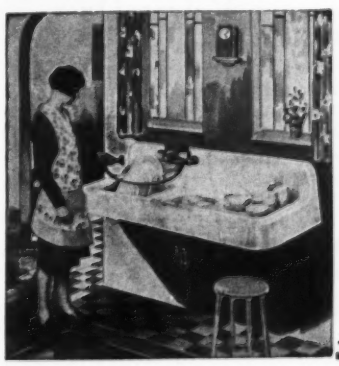
Look for this Trade Mark

You've had enough experience with brass fittings to know that they are not all alike. For the type of work you do, nothing less than ACHESON BRASS FITTING quality will do. Be sure you get it.

ACHESON MFG. CO.
Rankin, Penna.

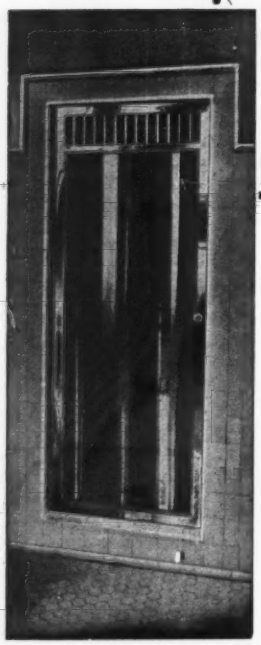
"EBCO" DISHWASHING SINK

. . . with built-in dish pan



"A New Selling Slant" is the title of a booklet you may have for the asking. A new way to turn quick plumbing profits. There is no obligation—it is FREE.

The D. A. EBINGER SANITARY MANUFACTURING CO.
411 West Town St. Columbus, O.



PATENTED

Be Sure It's a Genuine *C & S* Shower Door

There is a big difference between genuine ***C & S*** Shower Stalls and Doors and cheap imitations.

If you want to give your customer the highest value for his money be doubly sure you install for him ***C & S*** Equipment.

Order them by name and insist on the genuine.

Write us for complete details

CRIST & SCHILKEN CO.
Established 1903
500-508 37th Street PITTSBURGH, PA.

ALL STEEL

--with a handle drop forged--not cast

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1,813,253. Water Heater. Jesse H. Newport, Kenilworth, Ill.

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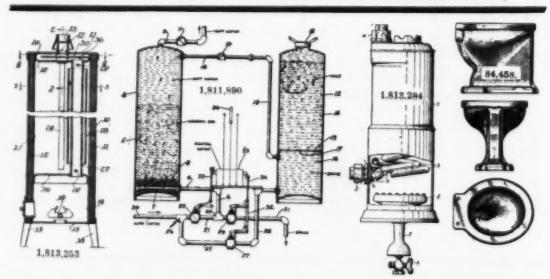
1,813,284. Coupling for Circulating Coils. Arthur Friedman, Cleveland, Ohio, assignor to The Cleveland Heater Company, Cleveland, Ohio, a Corporation of Ohio.



84,458. Water Closet Bowl, Ornamental Design. George Brain, Tiffin, Ohio, assignor to Standard Sanitary Manufacturing Company, Pittsburgh, Pa., a Corporation of New Jersey.

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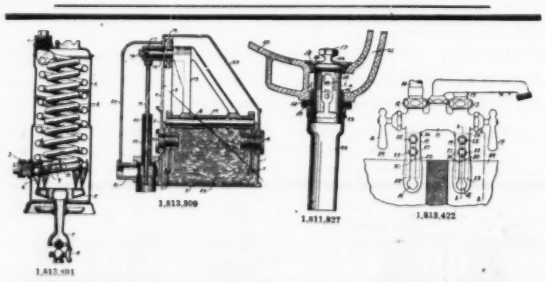

1,811,827. Lavatory Hand Lift Drain. Frank G. Brotz, Kohler, Wis., assignor to Kohler Company, Kohler, Wis., a Corporation of Wisconsin.

1,813,422. Laundry Tray Faucet. Elton A. Pope, Oakville, Conn., assignor to The Chase Companies, Inc., Waterbury, Conn., a Corporation.

1,812,874. Sump Pump. Mead Hedglon, Syracuse, N. Y., assignor to M. L. Oberdorfer Brass Company, Syracuse, N. Y., a Corporation of New York.

1,814,041. Soldering Iron. Edward Jacobson, Winnipeg, Manitoba, Canada.

1,816,115. Soldering Apparatus. Carl Helle, Brunswick, Germany, assignor to Elektrische Lot- und Schweiss-Gesellschaft mit beschraenkter Haftung, Brunswick, Germany.

1,815,280. Electric Soldering Means. John A. Tolelk, West Orange, N. J., assignor to American Can Company, New York, N. Y., a Corporation of New Jersey.

1,814,319. Electric Water Heater. Robert W. Linville, San Fernando, Calif., assignor of thirty per cent to Irving S. Watson, Burbank, Calif.

1,814,396. Toilet Flush Valve. Rodney H. Marchant, Oakland, and Albert E. Jurs, Piedmont, Calif., assignor to National Sanitary Valve Corporation, Carson City, Nev., a Corporation of Nevada.

Heating Department

1,812,346. Thermostatic Valve Mechanism. Otto John Kuenhold, Cleveland, Ohio, assignor to H. M. Sheer Company, Quincy, Ill., a Corporation of Illinois.

1,811,659. Fuel Tank and Method of Making the Same. Andrew A. Andrake, Cleveland, Ohio, assignor to The Glenn L. Martin Company, Cleveland, Ohio, a Corporation of Ohio.

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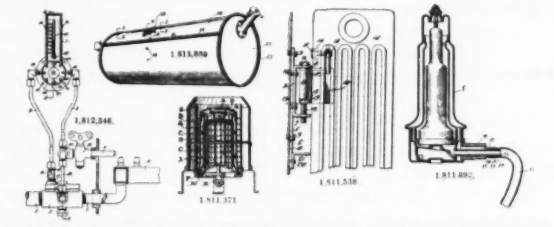
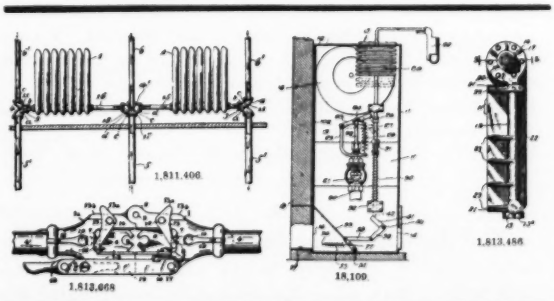


1,811,371. Oil Burner. Satoru Takimizu, Toyotama Gun, Tokyo Fu, and Hiroshi Idemitsu, Susaki, Fukuoka, Japan.

1,811,406. Pressure Equalizing Means for Heating Systems. Alfred J. Rudolph, Bywood, Pa.

1,813,668. Diestock. Gideon Garfield Hassler, Stowe Township, Allegheny County, Pa.



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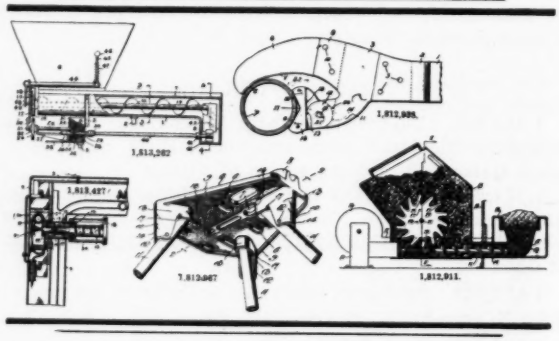

1,812,938. Wrench. Charles L. Dunham, Wellsburg, W. Va.

1,812,911. Agitator for Stokers. Joseph H. Walter, Portland, Ore., assignor to Iron Fireman Manufacturing Company, Portland, Ore.

1,813,960. Refrigerating Apparatus. Herman Scharnagel, Tompkinsville N. Y., and Matthew H. Loughridge, Bogota, N. J., assignors to Harry W. Dyer, New York, N. Y.

1,813,979. Flow Control for Refrigerating Systems. Frank R. West, Detroit, Mich., assignor to Rice Products, Inc., Detroit, Mich., a Corporation of Michigan.

1,813,987. Refrigerating Apparatus. James W. Carl, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware.

1,813,999. Refrigerating Apparatus. George F. Hofferberth, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware.

1,814,001. Refrigerating Apparatus. Jesse G. King, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware.

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1,814,114. Refrigeration System and Method. Walter Light Bodman, New York N. Y., assignor to The Insulation Corporation, a Corporation of Delaware.

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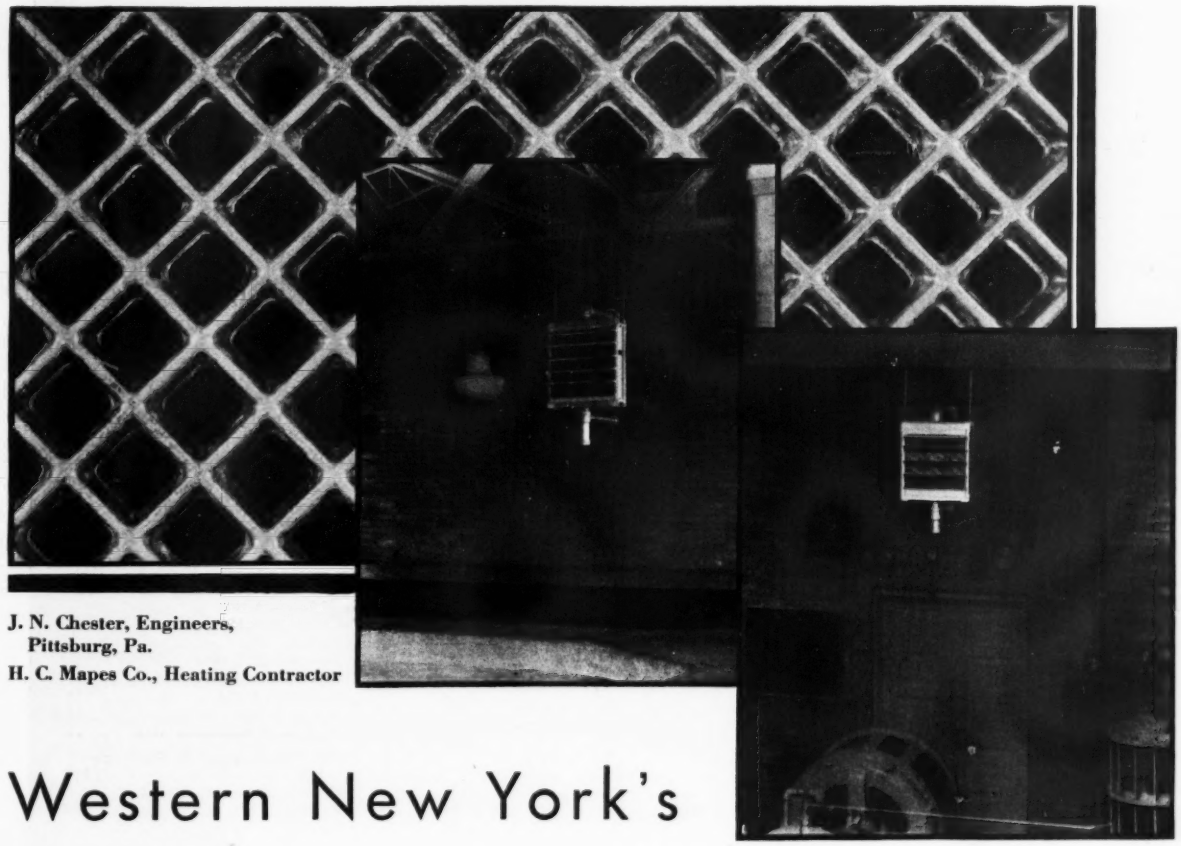

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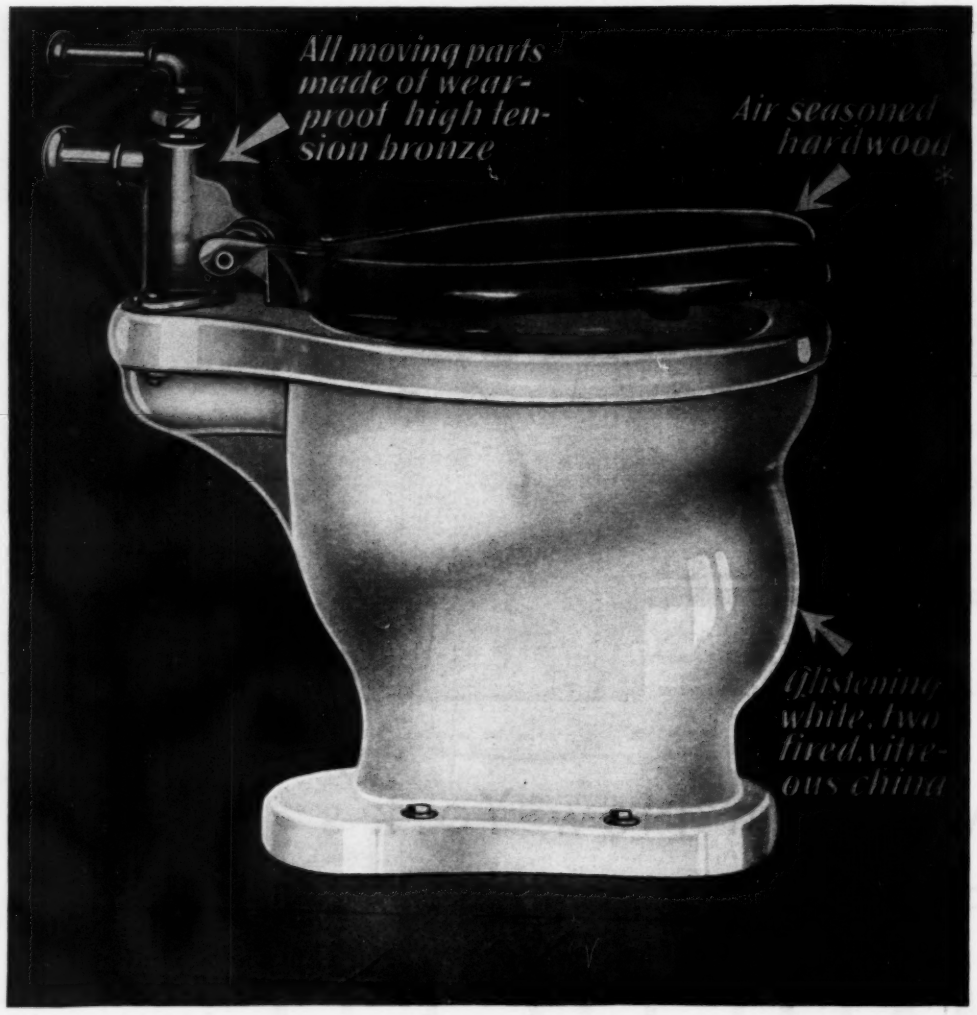
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